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Editorial

THE ONLY REAL DEFENSE

In this, the second of the *Bulletin* issues devoted to defense against atomic attack, emphasis is laid on *prevention* rather than *relief*.

The dispersal—that is, defense-through-decentralization—of cities and industries has been urged in the *Bulletin* ever since 1946.[1] A year ago in the first Civil Defense issue of the *Bulletin*, dispersal was discussed by Mr. Tracy Augur; its importance was emphasized also in the article by Mr. Ralph Lapp, and in the editorial, "Civil Defense—A Long Range View." It forms the main topic of the present issue.

Ever since the atomic bomb became a probability (and soon afterwards, a reality), atomic scientists have forecast that dispersal of large industrial agglomerates will be the most important if not the only answer to the threat of atomic aggression. World government alone could completely eliminate this threat; international control of atomic energy could provide at least a timely warning and thus obviate the necessity of living in a permanent emergency. These have been—and remain—the main political aims of atomic scientists concerned with the future security of the world.

In the absence of international control, dispersal is the only measure which could make an atomic "super Pearl Harbor" impossible.

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Admittedly, dispersal is very expensive. However, the alternative of maintaining—perhaps for many decades—a permanent full-scale mobilization of military and civil defense forces in and around each major city, is likely to prove in the long run even more expensive—and the effectiveness of even the best standing defense against a sudden atomic attack is bound to be limited. Military science and technology do not promise to erect—now or in the foreseeable future—an impenetrable barrier around the American continent.

In addition to costs, powerful political and psychological obstacles stand in the path of a determined dispersal policy. Dispersal not only threatens innumerable vested interests, but also tends to disrupt forcibly the accustomed ways of living. It violates the desire of most Americans to shape their lives without official advice and interference. However, living in permanently threatened "industrial citadels," under constant alert, is equally repugnant to them, and would mean an even more intolerable interference of government with the private life and freedom of the citizen. Even under the shock of Korea, it has proved difficult to man the civil defense apparatus of American cities with more than a skeleton force of volunteers. It is unlikely that American urban population will be willing to maintain, throughout the years to come, a sufficiently large and permanently alerted civil defense—except under a compulsive civil defense service law.

The most exhaustive preparations for first aid, fire fighting, and relief after an atomic attack, while they can promise a considerable reduction in the number of casualties, could do little to protect the productive facilities of an attacked city—facilities whose incapacitation is likely to be the prime aim of the attack. Radical alterations of many existing buildings, creation of broad fire lanes and wide new radial and circular thoroughfares, obviating the danger of "fire storms," and permitting rapid access of fire fighting equipment to any part of the stricken city, may save some plants; but peacetime dispersal of critically important facilities into satellite communities may be not much more expensive—and a great deal more effective.

City planners were quick to point out the advantages to health and happiness of the population and to the efficiency of the national production and transportation plant which could be brought about by judicious dispersal. By reducing the fear of an atomic attack, both in new, dispersed communities and in old urban centers deprived of their present concentration of attractive targets, dispersal may permit the government to dispense with the many restrictions of freedoms and civil rights which will become unavoidable if present industrial citadels are permitted to survive and grow. Garrison-state mentality, with inevitable excesses from ill-advised guardians of public security, could be expected to subside, international atmosphere could become less heavy with fear, and more conducive to peaceful alternatives to war or arms races.

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It has been stated often before, but cannot be emphasized often enough, that reduction of vulnerability of our cities to atomic attack is important not only to *win* a future war, but above all, to *avoid* it. Americans by now are familiar with the argument, underlying our present foreign policy and military planning, that American atomic supremacy counterbalances the overwhelming Soviet armed power. It discourages the Soviet leaders from utilizing this power immediately to prevent economic and military consolidation of the western world, which they consider a threat to survival and aggrandizement of the communist world.

It has also often been pointed out (but perhaps not generally realized) that our atomic supremacy is an asset which will inevitably depreciate as the Soviet leaders expand their stockpile of atomic weapons and improve the methods of their delivery. Because of the limited number of worth-while targets for the atomic bomb no acceleration of America's own production of atomic weapons, and no ingenuity in devising new methods of their use, can do more than to slow down this depreciation.

The usual conclusion from this estimate is that the time during which American atomic weapons remain effective as deterrents to aggression, should be utilized to rebuild the non-atomic military strength of the Western nations, creating an effective barrier to a sudden advance of the Soviet army into Europe.

It is not too early, however, to think beyond this point. Let us imagine ourselves in the year 1960. An adequate Western army has been built up barring the Soviet advance into Western Europe. Its very existence encourages opposition to Soviet dictatorship in satellite countries, and even in the Soviet Union itself. Soviet leaders are convinced that sooner or later this army will attack eastward. In the meantime their atomic stockpile has grown to a size which they estimate is sufficient for a stunning blow at American productive centers. The possibility of resolving all real or imaginary

[1] J. Marshak, E. Teller, and L. R. Klein, "Dispersal of Cities and Industries," *Bulletin of the Atomic Scientists* (April 15, 1946), p. 13.

dangers by a sudden atomic onslaught on America is bound to become tempting.

Such a blow would deprive the Western European army of its major sources of armaments, supplies, and replacements, and could be followed immediately by an attack on the ground in Europe. American atomic retaliation will be inevitable, but Soviet leaders may decide to risk it in the hope that their initial attack would have made it impossible for America to follow up with a general build-up of military strength, which alone could ultimately bring us victory.

In this critical situation—which is very likely to arise a few years hence—effective dispersal of American production plants could prove the decisive deterrent. With the hope of a paralyzing blow against American production centers gone, the Soviet leaders will have to restrain themselves—as they are restrained now when their atomic weapons are too weak for an attack on the presently wide open vital American targets.

★ ★ ★

Atomic weapons buy us time now. Dispersal would buy us much more time later, when the present deterrent ceases to be decisive. This time may be ten or twenty years; but it, too, is bound to end. Piling up more and more armaments will not extend it; American and other Western leaders must use this time for work, tirelessly and imaginatively, for a permanent peaceful organization of the world. Otherwise the final catastrophe will be only the more horrible for being longer deferred.

The memoranda of the atomic scientists in 1945, the working papers prepared at the founding of the atomic scientists' associations in the same year, were perhaps the earliest discussions of the necessity of a dispersal of cities as a consequence of the invention of atomic weapons.

The first articles on this subject in the Bulletin were to our knowledge the earliest occasion on which the public was acquainted with this problem. It has since been taken up by numerous city planners and military analysts.

The federal government has counselled dispersal of new industrial construction for several years but without much success. Now, finally, President Truman, advised by the National Security Resources Board, has put the authority of the White House behind the dispersal drive. It is to be hoped that no more precious time will be lost.

Congress so far has been deaf to all talk of dispersal—it rejected the bill to move a number of government offices from Washington into Virginia and Maryland, apparently considering it bureaucratic cowardice and self-coddling, and it voted down an amendment intended to direct government-supported private defense construction into strategically safe areas—apparently condemning it as an attempt to benefit underdeveloped states at the cost of the industrialized seaboard states. It is to be hoped that from now on, dispersal will be handled by Congress more seriously and with less partisanship.

The industrialization of the South and Southwest is a problem in itself and not a part of urgent protective dispersal; its partisans will do well to keep the campaign for their aims, however desirable they may be, separate from the vitally needed drive to make American industry safe from a sudden crippling blow.

Most articles in this issue were prepared before the new directive of the National Security Resources Board was issued. They have not lost their importance after the announcement of this first and rather timid step in the right direction.

Apathy, scepticism, or outright opposition to all radical civil defense measures still prevails in Congress and the public mind.

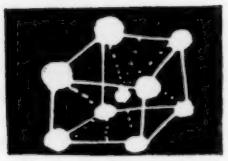
In a future war the whole country will be the battlefield, and everyone a direct target of attack. Civilian unpreparedness now invites attack not less than military disarmament, but realization of this is slow to come to a nation accustomed to identifying war with sending of troops to fight overseas.

—E. R.

'Anyhow we're giving the country a great example of how to hide'

Courtesy Washington Post and Herblock

A PROGRAM FOR URBAN DISPERSAL



DONALD and ASTRID MONSON

Donald and Astrid Monson, a husband-and-wife team, have been city planners with the Detroit Housing Commission, and have studied and written on the subject of dispersal in other journals. They believe federal financing will be necessary for any real dispersal program, but urge that local planning agencies be used and that local leaders take the initiative—ultimately they believe dispersal will pay for itself in more efficient and productive modernized plants and facilities.

THE discovery and development of atomic weapons can be expected to bring about profound changes in the form and structure of the modern city. Whether these will result merely in even larger and more easily destroyed targets, sprawling ever more widely over the landscape and becoming even less efficient and pleasant places in which to work and live, or whether we have learned how to order the inevitable changes so as to make our cities not only physically more secure but also better able to function and more desirable to live in, depends on what action we take in the next few years.

Whether war is imminent, or five or ten or twenty years away, or whether we are at the threshold of a hundred years of peace, we know that a new weapon has permanently been added to man's arsenal of self-destruction. In time, there may well be not only two or three great powers armed with the new weapons, but almost any country, with a government responsible or irresponsible, may be able to produce and use atomic weapons.

Though we have to live in the shadow of this threat, we are fortunate in one respect: the way of building our cities which can minimize this danger has long been urged by students of urbanism as the only way of making our over-crowded, over-extended, inefficient cities into more fit places in which to work and raise our families. Not only do we know how to build such cities, we even have a few examples of how it has been done. We do not need to look forward to some kind of troglodyte life, shut off from sun and sky and our fellow man behind thick ramparts of concrete.

Rather, the cities we must now build will be green and pleasant places, with grass and trees and space in and around them not only because they are more enjoyable so, but because space is our greatest protection in the danger which confronts us.

EFFECTS OF UNPLANNED DISPERSAL

The benefits of urban decentralization have been widely discussed and need no repetition here. As a matter of fact, our cities have already, without benefit of social philosopher or city planner, begun a spontaneous dispersal, as factories, stores, and homes flee the crowded city center for the suburbs. That this planless flight has created almost insurmountable problems of water supply, sewage disposal, road construction, public transport, school facilities, fire and police protection, etc., as well as intensified the already serious fiscal problems of both the central city and the suburban area, did not prevent dispersal from continuing at an increasing rate.

If this trend was in existence even before the Korean War, it has been given added impetus during the past year when the possibility of atomic attack ceased to seem remote to the general public. Land speculators were quick to sense this fear and have exploited it effectively. Around the periphery of many of our large cities sales of vacant land are booming, with more or less open reference to the fact that here there will be safety in case of war. Slogans were coined and may be found in the newspaper want-ads: "beyond the radiation zone," "outside the fifty-mile limit," "buy now for security later."

The desire to escape the dangers of atomic bombing, however unintelligently it may be expressed in the buying of vacant lots in the middle of a prairie, is a force to be reckoned with. There have been proposals that in case of war only "essential" workers remain in the cities to keep factory production going, or even that the entire population of threatened cities be moved out to the suburbs. Others have advocated forcing the people to stay in the city by blocking all exits, presumably with armed guards.

These proposals fail to take into account the nature and function of the large city. Which of Detroit's 600,000 factory workers are essential and which shall be evacuated? If the attack doesn't come for months—for years, perhaps—which factories are to operate and which to remain shut down? Where will a million men and women and children be living during this time? How will it be possible to keep evacuees from drifting back into the city? What will happen to the morale of the workers remaining, voluntarily or involuntarily, in their empty houses? How long can the city function under these conditions?

NATURE OF ATOMIC ATTACK

It is not within the scope of this paper, nor the competence of its authors, to discuss civilian defense from the point of view either of pre-attack preparation or post-attack rescue work and organization. It would seem, however, that atomic warfare is essentially different from the sustained, day-in and day-out type of attack with which World War II made us familiar. Since in any event the supply of atomic weapons is limited to a relatively small number, it can be expected that an atomic atack is most likely to be a one-shot proposition and depend for its effectiveness on the degree of surprise with which, in a matter of minutes and simultaneously upon a num-

ber of selected targets, it is able to wipe out a significant proportion of the nation's productive capacity and its ability to strike back.

This means that in all probability there would be no time for large-scale evacuation of our cities after a warning. A panic-stricken attempted exodus from these centers in the few hours granted under the most favorable circumstances, would be ineffective and might be critically disruptive of their ability to withstand and recover from the attack. We need only call to mind rush-hour traffic in any of our great cities and magnify it several times.

On the other hand, as an enemy cannot be expected to let us know when he plans to attack, life must go on as though no attack were coming. We cannot shut down our factories, stop our trains, close down our ports, and wait for years for an attack that may never come.

Any enemy knows this, and also that to whatever extent fear of attack can be counted on to disrupt our economy and lessen production, a bloodless battle has been won. Not only the production of armaments but the raising of the standard of living of our people and of the poorer countries of the earth demand that our full energies be utilized. Fear and anxiety over our safety, allowed to go on year after year, can sap our determination that the people of this world shall yet be free from the fear of poverty and insecurity and aggression, and can lose the war for us without an atomic bomb having been dropped. Yet danger of atomic bombing is real, and it is just in those areas where production must go on without interruption that this danger is greatest.

Our imperative then is clear: to find a way of providing as great a measure of safety as possible for the people who must work and live in the danger areas, while at the same time continuing that high level of military and civilian production which our enemies fear more than they do our bombs.

THE "GARDEN CITY" PRINCIPLE

The dispersal of cities so as to make them less vulnerable to atomic attack has been advocated frequently in these pages and elsewhere. Essentially, the decentralization or "garden city" principle is based upon the gradual breaking up of the central mass of a large city by first building a number of self-contained smaller "satellite" towns to be located in the open countryside at some distance from the city, each satellite separated from adjacent ones and from the parent city by wide, permanent belts of open land, or "green-belts"; after sufficient population has been drawn off into these "new" towns, the remaining central city is separated into a number of communities analogous to the satellites and also divided from one another by newly cleared green-belts within the old city area. With each satellite and community connected to the rest of the metropolitan complex by expressways and railways, and with wide open spaces separating each from the other, the metropolis would be not only more pleasant to live in but far less vulnerable to atomic attack.

The most cogent argument put forward in favor of this type of city structure is not the obvious one that its open spaces and lower density of population would result in fewer casualties in case of attack, but that it would so reduce the advantages an enemy might hope to obtain by dropping his supply of bombs that, in view of the retaliation expected, he might decide not to use the weapon at all.

AMERICAN BUILDING PRACTICES

At this point it may be asked why, if this form of city is so desirable from the point of view of good living, to say nothing of military defense, we go on building in the same old way, adding millions of people and billions of dollars of developments to our admittedly already over-sized, vulnerable cities? A second question to be answered is whether, whatever the reasons have been for our past failure to decentralize our cities according to plan, the time has now come when for reasons of defense we must find a practicable and reasonably rapid method of dispersal?

The answer to the first question is largely inherent in the nature of the building process as we practice it in the United States. Our cities, compared with those of Europe or the Orient, are new and have grown very rapidly. As our cities expanded, we did not rebuild old buildings—we just built new ones farther out at the edge of town. At just about the time when the area of the resulting cities was growing so large that we might have found it more economical to start rebuilding some of the old, worn-out sections near the center of town, the automobile was invented and distance from the center of town became relatively unimportant. In the next thirty years our cities grew larger and larger in area, with new developments mushrooming in every direction. Our rapidly growing urban population, reinforced by migration from the south, made it possible to keep these old areas profitably filled with low-income groups while the middle- and upper-income families fled to the suburbs. Land values in fringe areas rose rapidly, and speculators made fortunes both in buying and selling land and in building houses for the families seeking new homes.

By and large this process was uncontrolled by considerations of city planning or of the efficient functioning of the metropolitan area. Attempts to regulate it by planning regulations, zoning ordinances, etc., tended to be swept aside by the force of the building boom caused by the chronic housing shortage. With the fringes of most of our metropolitan areas governed by a large number of more or less jealous and uncooperative municipalities and townships, attempts at planned regional development were often rebuffed and at best found only lip service. Though it was frequently possible for the various municipalities in an area to work together to try to solve the problems created by unplanned development—i.e., metropolitan sewage disposal commissions, water boards, county road commissions, etc.—any attempt to determine that certain areas within the metropolitan complex should be developed and others left permanently as "green-belts" would have been met with howls of anguish from the areas to be left undeveloped—an understandable point of view since there was no machinery for balancing out the resulting inequities. Similarly, owners of property on the fringes of built-up areas were anxious to develop or sell their property so as to reap the not inconsiderable profits to which their fortuitous proximity to the growing urban agglomeration entitled them. Woe be to any local official who decided that here there should be a green-belt!

The individual builder was in no position to do anything to change the system. He could not single-handedly decide that the city was large enough already and that the next subdivision should be three miles farther out, since he had no way of seeing to it that the intervening land remained permanently undeveloped. He could not afford to pay for the necessary miles of streets, water mains, sewers, and utility lines. The few examples of planned satellite towns we have—Welwyn Garden City, and Letchworth in

England, the partially completed Radburn in New Jersey, for example—found the problem of buying a large enough piece of land to insure the ultimate development of an entire town, protected permanently by its own green-belt, almost prohibitive. It seems clear from the experience we have had that no private builder can be expected to fulfill functions which are properly those of the public planning body or of the municipality itself.

As a result our cities continued to grow without plan, each builder tacking his development on to the edge of the already built-up area in spite of the objections of professional city planners and the admitted economic, social, and political disadvantages. We are just now embarking on a program of slum clearance which recognizes, however imperfectly, the fact that this process not only leads to the inefficient and uneconomic development of the outer edges of our cities but leaves their cores to rot. It is ironic that, at the same time as we are speaking of the need to disperse our cities, "economic" considerations have led the municipal authorities of many of our large cities, as well as the responsible federal officials, to approve plans to rebuild these slum areas at densities far higher than the congested slums they propose to replace.

PRIVATE RIGHTS AND ZONING

The reason for this, and for our failure to apply the principles of city planning upon which we agree, is essentially the fact that private property rights in land are, under our laws, so absolute that unless it can be shown that the "health, safety, or morals" of the people are endangered, the community cannot as a rule interfere with the owner's right to develop his land in any way he sees fit. The zoning power, dependent upon the police power of the state, is at best a negative, restrictive force; it does not lend itself to a positive program for city planning.

In addition, we have no machinery for metropolitan government, and state legislatures are notoriously slow in granting large cities powers which small cities do not want them to have. Thus we have no way of enforcing metropolitan development plans, even when these are competently made, on the various localities in the metropolitan area. The processes of education which could, in time, convince people of the value of planning the growth of our cities so as to make them both better places in which to live and to render them less vulnerable to atomic attack, seem to be up against almost insurmountable hurdles in view of the necessity for a program of dispersal which can be started at once.

This brings us to our second question: if we have been unable in the past to inaugurate a program of planned dispersal, must we not now, for reasons of survival if for no other, find a way of doing the job?

NEGLIGIBLE ECONOMIC FACTOR

The problem is not essentially an economic one. We are spending something like thirty billion dollars a year on new construction, and much of it is already going into suburban areas outside our large cities. In the ten years between 1940 and 1950, the suburban districts of our twelve largest metropolitan areas alone grew by 4,700,000 persons—enough to build one hundred complete satellite towns outside these twelve cities, each surrounded by open space wide enough to give real protection. Last year we built 1,300,000 dwelling units in the United States; assuming that half of them were built in the suburban districts surrounding large cities, these houses, properly located, could have formed fifty more protected satellite towns.

Similarly, we have built and are building enormous new factories. Some of these, for strategic reasons, must be located far from any large city. But most of them are being built just outside existing cities and will depend for their labor force upon workers already in those cities or who can be attracted to them by the new employment opportunities. A program of planned dispersal would so locate these factories that, with the new housing and public facilities being built to accommodate the additional workers, a satellite town would be formed.

THE POLITICAL FACTOR

The problem, then, is not so much economic as political—political in the sense that we must formulate a national dispersal policy, adopt a program for its implementation, and do what is necessary to achieve it, the whole based upon the requirements of national survival. If the measures proposed seem drastic, let it be remembered that we do not hesitate in the interests of national defense to call upon men to give up their homes, their families, and possibly their lives.

The essential points in a suggested program of planned dispersal have been stated elsewhere by the writers[1]:

1. Location of highly specialized war production facilities, such as the proposed H-bomb city, and other military production centers of unique importance, in remote areas, as is now being done.
2. Placement of as many armaments contracts as possible in small cities where plant capacity exists or can be provided through expansion of existing facilities or, where necessary, construction of new plants.
3. Direction of all new construction in metropolitan areas to widely spaced satellite towns, both as a matter of economy and to minimize danger from bombing, connecting the new towns and the parts of the central city by means of a network of railroads and highways.
4. Speeding up construction of broad express highways through our large cities.
5. Drastic reduction of population density in the central portions of these cities through clearance of slums and of broad bands bordering the expressways, and control of all rebuilding.

PRINCIPLES OF DISPERSION

The political and administrative difficulties in depending upon local initiative for the formulation and execution of an effective dispersal program are almost insurmountable. Admitting that as large a degree of local participation as possible is desirable, it would, however, seem evident that the gravity of the situation from the point of view of national defense is such that a considerable amount of federal planning, coordination, and administration is justified. Since the program is an integral part of national defense, federal financing will be necessary. There are obviously many ways in which the complex federal-local relationships could be worked out: one possible way is outlined below. The form of administration of the program is, however, perhaps not so important that it be undertaken with the understanding of the necessity of planned dispersal both for the welfare and safety of the localities involved, and for the survival of the nation if attack should come.

Although many of the details of getting a dispersal program under way remain to be worked out, a few principles can be agreed upon at the start:

[1] *American City*, "How Can We Disperse Our Large Cities?" December 1950 and January 1951.

1. The dispersal program must be within the limits of our national economy and of our national productive capacity; it must make us more rather than less efficient, add to our productivity rather than decrease it; and it must make our cities better and more pleasant places in which to work and live even though the bombs never fall.

2. The program must be one which can be put into action within a very short time and which, though it will give increasing protection as it progresses, will from the beginning lessen the dangers to which the threatened areas are exposed.

3. Dispersal efforts should be concentrated first in those areas which are most vulnerable to attack and whose protection is most vital to the nation. We cannot be concerned here only with the saving of lives, whatever our natural promptings may be in this direction. The program must be directed toward keeping the country going in case of attack, toward keeping essential war and civilian production, communications, and transport functioning.

4. Wherever possible, existing local governmental and planning agencies should be used to plan and execute the dispersal program; but where local inertia or the opposition of vested economic or political interests threaten to delay or disrupt the program, the federal government must take the responsibility for its execution.

5. Whatever legislative power is needed to supplement existing federal enactments must be provided by Congress. It will be seen, however, that much of the power needed is already available under existing law and can be properly utilized in the interests of national defense, with due regard to the just compensation of persons whose property rights are involved.

6. Although in the long run the dispersal program can be expected to pay for itself in the more efficient functioning of private production, transport, and municipal services made possible by the transformation of our present badly laid out and physically obsolete urban plant, federal assistance in the form of loans and grants-in-aid for land acquisition, highway construction, slum clearance, housing, and the provision of public facilities will be needed if the program is to proceed at a pace rapid enough to meet the situation.

7. The agencies charged with the responsibility of administering the dispersal program will have to be prepared to resist the strongest kinds of pressures for the granting of special exemptions and privileges. Property owners, builders, manufacturers, local public officials, and countless others will have plausible and often valid reasons for wanting the dispersal plan changed because of special circumstances. Realizing that human beings are fallible and will make mistakes, those administering the program will nevertheless have to be strong enough to resist these pressures while at the same time recognizing the possible inequities involved, resolving to correct the inequities and compensate those who have suffered from them, but not letting the whole dispersal program bog down in the process.

MEANS TO ENACT DECENTRALIZATION

Within the framework of these general principles, the following is suggested as an outline of the steps which might be taken to get a dispersal program under way in a reasonably short time and set up the machinery for its realization:

1. The President should be empowered, if he does not already possess the necessary authority as Commander-in-Chief and under his emergency war powers, to set up a *National Defense Dispersal Administration* (NDDA), headed by a man of the greatest possible vision and courage, and with an Advisory Committee consisting of top-ranking representatives of the armed forces, civilian defense, industry, labor, municipal officials, and the general public. The NDDA should be vested with broad powers for the planning and administration of a national program of urban dispersal and should be empowered to call upon all appropriate federal, state, and local agencies to assist in carrying out the program. It should be empowered, through adequate appropriations and exemption from any unreasonably time-consuming Civil Service regulations, to recruit a staff of the most competent city planners and related technicians available.

2. With the assistance of its Advisory Committee and appropriate agencies, the NDDA should prepare a list citing and defining, in approximate order of their importance to the nation and vulnerability to atomic attack, a limited number of areas considered of critical priority in a dispersal program; a second list of those less critical but in which a dispersal program would be highly desirable; and a third list of areas in which, though not necessarily a matter of first or second priority, dispersal would be advisable. Criteria which might be used in establising such priorities include such factors as importance of items produced to the nation's economy, degree of concentration of population and industrial facilities, importance of transportation or communications facilities, special vulnerability due to geographic location, etc.

3. The NDDA should next, with the advice of appropriate agencies, determine *which of these areas should*, as a matter of policy, *receive no additional defense contracts* which would involve the necessity of recruiting labor from outside the area, and *in which areas it would be advisable* to make definite efforts actually *to reduce the amount of defense work* in order to discourage further migration into the area and induce workers to transfer to less hazardous areas where labor is in short supply. Federal agencies awarding defense contracts and dealing with material allocations and manpower supply programming should be notified of the policies decided upon in this regard and instructed by Presidential order to act in accordance with them.

4. Beginning with the areas on the critical list and proceeding as rapidly as possible down the line in order of priority, *the President*, on the recommendation of the NDDA, *should appoint for each area a metropolitan or area-wide Dispersal Planning Committee* (DPC), composed of top-ranking representatives from local planning agencies, government officials, civilian defense technicians, industry, labor, housing, social welfare, and other relevant groups, and the general public—each member being of unquestioned integrity and disinterestedness.

5. Simultaneously with the announcement of the appointment of such a Committee, *the NDDA should announce a "freeze date"*—such as June 25, 1950, the outbreak of the Korean War—as of which date the value of all land or other real property later found necessary for public acquisition in the interests of the dispersal program, shall be fixed. The purpose

of this step is to avoid the kind of unbridled speculation in land which recently took place, for example, on the periphery of the site acquired by the Atomic Energy Commission for the H-bomb installation in North Carolina. The problem of compensating persons who had incurred bona fide expenditures involved in preparing land for development since the freeze date but before announcement of it, can be worked out and is discussed below. In the condemnation or other acquisition of land needed for public purposes in the dispersal program, however, the awards paid to property owners would thus be based on the value of the land as of the freeze date and would not take into account speculative increases in value since that date.

LOCALIZED PLANNING

6. Beginning with the most critical areas, competent staff technicians of the NDDA should be assigned to work with local area DPC's in the *preparation of local dispersal plans,* which, in preliminary form, would include at least the following:

a) Designation of those parts of the metropolitan area which, by reason of central location, high population density, proximity to obvious targets, or other factors, should not have any additional building construction in them for the present time;

b) Selection of a number of outlying sites, largely vacant but not necessarily excluding small suburban towns, each site of proper size for a self-contained town of 40,000 to 60,000 persons, at suitable distances from the central city and separated from it and from one another by sufficiently wide open areas or "greenbelts." These sites should be designated as "dispersal sites" or "new towns," in which virtually all industrial, commercial, and residential development in the area should be located in the next few decades;

c) Establishment of a priority list for the development of the new towns, starting with those requiring the least additional highway, rail, and utility construction;

d) Designation of the areas surrounding the present central city and between the various new towns as perpetual green-belts in which no building at urban densities is to take place;

e) Designation in the present central built-up area of the metropolis of future "separation strips" which are to be removed by slum clearance, the widening of expressway rights-of-way, the provision of parks and playgrounds, and other methods which can be used at once to decrease the number of persons living in the central city and break up the present unbroken mass into communities of 60,000 to 100,000 population;

f) Designation of zones within the new town sites or elsewhere in the metropolitan area in which new industries can be located and into which existing industries should move as rapidly as it is to their advantage to replace present obsolete plants or when plant expansion needs cannot be met economically in their present location.

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It should be pointed out that these plans do not need to be made in a vacuum; practically all our large cities have on hand all the basic information and most of the detailed plans on the basis of which a preliminary dispersal plan can be made in a relatively short time. It is not necessary at this stage for all the detailed development plans of each of the new towns, nor the detailed redevelopment plan of the central city, to have been worked out. It is only necessary to have decided on the areas into which further development should be channeled and those in which no future development should be allowed to go.

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7. Preparation of the preliminary dispersal plan for each area should be followed by opportunity for *public review and discussion,* but with cognizance of the emergency nature of the problem. Staff personnel of the NDDA should work with each area DPC to see to it that the plan is coordinated with national policies and meets federal requirements. By a given date the preliminary dispersal plan, with the approval of as many local governing boards in the area as possible and with written statements of the objections of the rest, should be submitted by the local DPC to the NDDA for approval.

ROLE OF FEDERAL GOVERNMENT

8. After being referred back, if necessary, for whatever modifications may be desirable, and after approval by the NDDA, the preliminary plan should become the official framework for all future building in the area insofar as the responsibilities and jurisdiction of any federal agency are concerned. It would, of course, be highly desirable that all municipalities and local governing bodies in the area cooperate by amending their zoning ordinances so as to bring them in line with the dispersal plan and by granting building permits only when the proposed construction is in accordance with it. In any event, however, the federal government could implement the plan in a number of ways:

a) FHA mortgage and G.I. insurance would be granted only to housing built in areas designated in the plan for future residential development, and in such areas as have priority of development;

b) FHA public housing would be built only in accordance with the plan, and priority for residence therein would be given to eligible families being displaced from slum or other central city areas being cleared according to the dispersal plan;

c) Federal slum clearance loans and grants would be given only for projects in which the proposed type of development fitted into the dispersal plan—i.e., resulted in the widening of a separation belt, reduced the density of an overcrowded area, etc.;

d) RFC and other government loans would be made only to industries locating in areas designated in the plan for additional industrial development;

e) Defense contracts, materials, allocations, tax concessions, and other inducements would be given to firms locating new plants in these areas, with special encouragement to firms now located in areas within the central city designated for clearance because they are to form the future separation belts;

f) Federal aid for highway construction and other public works would be granted only for projects essential in carrying out the dispersal plan and would be stepped up in order to speed the rate of their completion;

g) Other aids to cities would be conditional on their implementing the dispersal plan by amending and enforcing zoning regulations, refusing building permits for new construction not in accordance with the plan, etc.;

LOCAL AUTHORIZATION

9. Upon the recommendation of the local DPC, the NDDA would name for each dispersal site or new town outlined in the area dispersal plan, a group of responsible and disinterested local citizens to form a *Development Authority.* In order of priority of development of the various new towns in the

dispersal plan, each authority, with the assistance of the staff of the area DPC, would make a detailed plan for the development of its town, providing for industry, commerce, housing, recreation, transport, and needed public utilities and facilities in accordance with the general outlines of the town's future development as already set forth in the preliminary dispersal plan. Upon approval by the area DPC and the staff representative of the NDDA, this would become the official development plan for the "new town."

10. The Development Authority would next engage in an *active program of encouraging the development of the new towns,* acquiring by condemnation all land needed for actual development and selling or leasing it to such private builders, public agencies, cooperatives, or other persons or agencies as might be prepared to build according to the development plan. For reasons of economy only one new town should be developed at a time, with all possible new construction in the metropolitan area channeled into it. Condemnation awards for land acquired should be at the "freeze date" values mentioned above, with an emergency procedure set up which permits the Development Authority to secure title at once, if needed, paying the appraised value and negotiating final compensation. Sale or lease prices to developers should reflect the increased value of the land which the installation of public facilities and the permitted development under the plan have given it, the increment thus netted being set aside in a special fund the use of which will be discussed below.

11. *Federal loans,* possibly under Title I of the Housing Act of 1949 but if necessary under a new legislative enactment, *should be granted to the Development Authorities* to enable them to install the necessary roads, public utilities, schools, and other facilities "necessary for sound community development," the loans to be paid off in a number of years out of the tax revenues from the newly developed property.

12. The Development Authority would give special incentives to nonprofit or limited dividend housing corporations who undertook to build moderately priced sale or rental housing in the new towns, with priority for persons being displaced from the central city by the dispersal program. Such incentives might include land at the price paid by the Authority, and long-term, low-interest loans secured from the federal government and under-written by the Authority.

13. If an insufficient amount of private housing is being provided by these and other private sources to take care of the families being cleared out of the center of the city, the Development Authority might itself undertake the construction, on a non-profit but non-subsidized basis, of the required housing, with long-term, low-interest loans being made available by the federal government for this purpose.

14. The Development Authority would give special incentives to industries, either those moving out of the areas in the central city designated for clearance, or new industries, which locate according to the plan. These incentives might be in the form of land at low rentals and of priority in housing for their workers.

REFINING AND IMPLEMENTING PLAN

15. Once the new towns are far enough along, the breaking up of the central mass of the city can begin in earnest, although it can be assumed that some slum clearance and expressway construction has been under way all along. The preliminary dispersal plan has already designated the land within the central city area which is to be cleared and not rebuilt, such as strips bordering on expressways or railroads and other areas which can serve as separation strips buffering off one community from another. It has also designated the areas whose population density is considered too high and in which parks, playgrounds, parking lots, allotment gardens, and other open spaces should be introduced in order to thin out the overconcentration. This preliminary plan should by now have been refined by the area DPC to the point where it can be implemented.

16. Beginning with the clearance of expressway rights-of-way and such slum areas as are not to be rebuilt, families can now move out into the new towns, and the structures in which they have been living can be torn down. The strips thus cleared will form at least rudimentary firebreaks, escape roads, and access routes in case of atomic attack. The next step is the gradual widening of the clearance area along both sides of the expressway, the clearing of additional slums in the separation belts, and the thinning out of the most obsolete and substandard structures in other congested areas. The land cleared need not stand idle: it can be used for parks and playgrounds, allotment gardens, parking lots, tree nurseries, and other useful purposes.

17. For a few years, federal aid for expressway construction should be intensified, and slum clearance should be speeded up so that the program of thinning out and breaking up the central mass of the city can proceed as rapidly as the development of the new towns makes possible. Over a period of years the new structure of the central city will emerge—a number of more or less self-contained communities, separated from one another by wide, pleasant green spaces in which lie expressways and railroads which bind them together. Even though the separation belts in the central city will probably never be as wide as the green-belts between the new towns, they should, within a period of ten years, be wide enough to act as partial absorbers of atomic attack, as effective fire-breaks and escape and access routes; within twenty-five years they should be, in many places, a mile in width.

FINANCING AND ECONOMY

The actual construction costs involved in the program outlined above are great, but for the most part they are costs we face even without the danger the dispersal program is designed to meet. The expressways would have to be built in any event if our large cities are not to choke to death in their own traffic; the slums would have to be cleared sooner or later if we are not forever to pay the terrible costs of the disease and crime they breed; new factories, homes, and stores would be built anyway, as witness the unprecedented growth of our suburban fringe areas during the past ten years; new highways, sewers, schools, and other public facilities would have to be built to serve them. Over a period of twenty or thirty years, a large percentage of the older factories, stores, and homes of many of our great cities will have to be rebuilt. What this program attempts to do is not so much to apply a forced draft to this process and intensify the rate at which it is carried on, but to coordinate it so as to cut down its cost and to plan it so that when all the

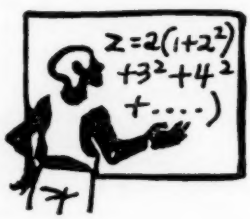
money and effort have been spent, we will at least have better, more efficient, and safer cities than we are now building.

PROBLEM OF "NEW TOWNS"

There are difficult problems involved, of course, which have not been discussed above. One is the question of the political jurisdiction of the "new towns." Shall they be separate political entities, adding to the already confusing number of governmental bodies in our metropolitan areas? Shall they be annexed to the central city, no matter what may be the opposition of the suburbs? How shall problems of water supply, sewage disposal, roads, transport, and the many other problems these areas already have, but which will be increased, be handled? The obvious answer is, of course, the establishment of metropolitan governments which will absorb all the *ad hoc* commissions, boards, and committees now grappling separately with these problems. The fact that under many of our state laws such metropolitan governments are almost impossible to set up in the face of the opposition of the smaller municipalities is an obstacle beyond the scope of this article. It may be said, however, that if war should come, considerations of this kind would soon be swept aside by the imperative demands of survival and that even under threat of war it may be hoped that metropolitan government may be closer than has so far seemed possible. The dispersal program need not, however, wait for the setting up of metropolitan government; rather, by its very nature it may prove to be a factor which will bring its realization closer.

Another complicated problem is that of compensating owners of land who suffer bona fide hardship because of the dispersal program. What is involved is essentially the transfer, by planned public action, of land values from where they are now or would be if no public dispersal program were undertaken, to where they will be after the plan has been made and the new metropolis emerges. In the process some property will lose value, other property will gain tremendously. Even if it were politically possible not to do anything about this, it would be inequitable to let some benefit at the expense of others.

For the solution to this problem we may look to the British Town and Country Planning Act of 1947, under which "development charges" are collected from those who benefit from a plan, and those who suffer unduly are granted special "alleviation of hardship." The English "compensation and betterment" theory has been treated elsewhere by the writers, but it may be said to be based on the "global" theory of land value: in any given area, hypothesizing a given ultimate population and a given amount of potential development, the maximum total development value of all the land in the area can be stated as a fixed or "global" sum. This value, to the extent that the area has not yet reached its ultimate development, may be said to "float" over all the undeveloped land in the area, "settling" when a given parcel of land is built upon and others not. Although each owner of vacant land hopes that it will be his land which is developed, only a very small portion of the land in the area will ever actually be developed, and hence the sum of the hopes of all the land owners will far exceed the actual "global" value of the land.



When a plan is made and certain land is designated by public action for development and other areas are permanently prohibited from development, those who happen to own the land to be built upon find themselves enriched, whereas the others have lost the speculative gains they hoped to make. Moreover, certain owners will, in good faith, have paid high taxes, put in water mains and sewers, had building plans drawn up, incurred legal expenses, and otherwise made abortive expenditures which they stand never to be able to recoup if their land turns out not to be in an area designated in the plan for development. The owners who lose value thus have two types of claims: first, a share in the "global" development value, and second, the loss of actual sums expended in good faith on development prescribed by the public dispersal plan.

Meeting these claims from a special fund, at least partly raised through the sale of land in the new town sites at values reflecting its new urban use, seems to be the only way of carrying through a dispersal program without great inequity to some people. Furthermore, it seems to be the only way to handle the wholesale transfer of land values from the present crowded city centers to the sites of the new towns. For example, an area designated for clearance as a separation strip within the central city may cost $50,000 an acre to acquire, but as permanently vacant land, used for allotment gardens or a park, it may be worth only $2,000. On the other hand, a Development Authority may buy up vacant farm land for $1,000 an acre and sell or lease it for commercial, industrial, or even residential development, in which use it may have a value of $10,000, $50,000 or even $100,000. The proceeds from the sale or lease of the land in the new towns could thus be used to help pay for the central land being cleared, as well as for the compensation of those who have valid claims of hardship. The British law sets up a Central Land Board to collect the "development charges" and administer the fund out of which compensation is paid. Some such system will have to be worked out here.

TIME AND THE DECISION

The writers are also aware of the difficulty in recruiting enough competent planners and other technicians to carry the dispersal program through; of the need for a broad program of public education to secure the understanding and support of the people for a dispersal program; and of the care with which the costs of dispersal must be balanced against other vital expenditures for the needs of our allies as well as ourselves. Basically, however, the problem is one of deciding whether the time has come when the threat that hangs over us is so great that the common welfare must take precedence over immediate self-interest, remembering again that we shall spend and build anyhow and need only decide that from now on it will be according to a plan designed for the safety of all.

A dispersal program cannot be put in effect over-night. If an enemy should strike tomorrow, we would have to do the best we can as we are. If, however, we have five, ten, or thirty years, we can accomplish a great deal. And if we are to have not war but peace, we shall be blessed indeed, for we shall only have been compelled to do what we should have been well-advised to do without the awful threat hanging over us all.

CITIES ARE HERE TO STAY

ROBERT E. MERRIAM
with the collaboration of NORMAN ELKIN

Seventy-five million people in the U.S. live in cities—like Chicago, where Mr. Merriam is an alderman and a participant as well as a student of population-and-politics. Without attacking the central themes of the proponents of dispersal, Mr. Merriam discusses dispassionately some of the practical difficulties—which include not only costs but the profusion of local governments involved, the danger of arousing latent antagonisms between city and country, and one community and another, and dispersal's basic threat to freedom of movement, which he judges America has developed beyond any other country.

THE clashing lights and symbols of our time are nowhere more vividly displayed than in the city. Revolution and evolution, violence and growth, both have firm roots in the cities. Wealth and poverty, elegance and squalor, comfort and misery, exhilaration and depression, grow side by side in the great cities of the Western World. There are those who go out of their minds listening to the city noises, and others who put the noises to beautiful music or song or words. The excitement of a Broadway is balanced only by the utter depression of block after block of run-down, tottering slum dwellings. The lonely patch of green in the sea of brick and mortar may not inspire beauty, but still the surroundings give many the sense of size and power which symbolizes urban life.

Despite the headaches and heartaches, despite the crowding and pushing and milling about, despite the heat and the filth, cities have grown and grown again. One hundred and ten years ago Chicago[1] was a village of some four thousand souls. Today the city alone has 3,621,100 persons, and its metropolitan area, 5,494,600 inhabitants. And still it continues to grow.

Today, over 75,000,000 inhabitants of the United States live in 140 urban concentrations like Chicagoland. Yet there are always discussions of whether we should do away with these urban aggregations. There are some who say that all cities are bad, per se. Some contend that large cities are bad. Others soberly point to Hiroshima and Nagasaki, and wonder worriedly whether we should not suddenly reverse the seemingly inexorable trend toward urban concentration in our national life.

To those who ask, "Are cities evil?" one may well answer, "Are human beings perfect?" The student of government and politics cannot help being impressed by the fact that crime, disorder, and corruption in government are not limited to the cities.[2]

Are there problems in bigness? It was DeTocqueville who said in 1831: "I look upon the size of certain American cities, and especially on the nature of their population, as a real danger which threatens the future security of the democratic republics of the New World; and I venture to predict that they will perish from this circumstance unless the government succeeds in creating an armed force, which, while it remains under the control of the majority of the nation, will be independent of the town population, and able to repress its excesses."[3] Jefferson, the first great American planner, voiced similar concern about the size of cities. But still our cities survive and grow, yes even thrive.

Is bigness a problem? This city councilman says, "Yes." The listing of big city problems might well lead the timid or faint of heart to agree that the city is the despair of America. Yet, in the long run, we must recognize that the nation's destiny will be affected profoundly by the cities, which have two-thirds of our country's population and wealth.

NEW PROBLEMS

Well, then, you may say, what about civilian defense and THE BOMB? Does this change the whole nature of the problem involved in this discussion? Or does it merely accentuate existing urban problems? Does it require drastic, surgeon-like action? Or should we sit down and see what may be done practically? Can cities organize for civilian defense in an atomic age? Or should we abandon the city?

Let's look at it this way: *if* we want to expend all of our energies over the next five or ten years in dispersing our cities at the expense of all our other commitments, national and international, and *if* we are willing to enact laws forcing people to move in a fashion similar to the Japanese-American evacuation from the west coast during World War II, and *if* industry will submit to detailed planning regulation, *then* we can talk about meeting the threat of the atomic bomb by spreading out our cities.

Of course, if we can get the Russians to agree to leave us alone for a hundred years, we can disperse quiet-

[1] The author's home town will be used as a necessary example of the problem, for obvious reasons.

[2] A recent vacation to a rural area left quite an impression on the "city slicker" author. In the short period of two weeks, the sheriff of a rural county was removed, the members of the school board indicted, and one councilman in the small town was under heavy attack for misuse of funds. The big city politicians of Chicago often are in awe at the "superior" skill of "the downstate boys."

[3] *Democracy in America*, trans. Henry Reeve (1904), Vol. I, 85, 311, 356–57.

ly and gradually, but still with strict planning controls over the lives of men and destinies of industries. But our crisis, so our leaders tell us, is in the next five years.

It would seem clear to this layman that cities are here to stay, with or without the atomic bomb. Before, during, and after every war planners hopefully draw diagrams of the "new" cities, but time after time out of the rubble of the old comes the new, not too much changed from the past. This is not to disparage planners—I am one of them—or to discourage planning. Nor are these remarks designed to indicate a mood of futility; there is much hope for the future. Rather, our problem is to make the best of what we have, to recognize human frailties, to organize our defenses for that horrible potentiality, and for each of us to work with every sinew in our body to create a world situation which will bar the need to drop the bomb. This, then, should be our major thesis.

The issue of complete dispersal is an academic one. Of course, those who care to devote their energies to the study of dispersal and the size of the ideal community can and should do so. It will be of great value in future new building. And also, of course, we must continually think in terms of placing new facilities so as to minimize the dangers of over-concentration. This might be called limited dispersal.

But we who are responsible for the lives and welfare of the citizens of today's real cities must think in terms of today's possibilities. We, then, must first think of how we can organize these urban aggregations for the best possible purposes, and second, how we can improve their organization, political and economic, so that they may be stronger and better able to stand the test of time—whatever may come.

Actually, dispersal of a sort already is a reality. Population and industrial decentralization in urban areas has been a major factor in the United States for the past thirty years. The rate of urban growth dropped significantly during the Depression decade, and although 1940–1950 statistics reveal a slight reversal of the 1930–1940 dip, the general trend has been unmistakably toward a decline in the rate of urban concentration over the past several decades. On the other hand, the most significant population development of the twentieth century has been the increase in the number and size of metropolitan districts from 44 to 140 today.

PRESENT INDICATIONS OF DECENTRALIZATION

Within metropolitan districts three trends stand out clearly:

A. Suburban and outlying areas are increasing their population at a much greater rate than the central cities.

B. The central cities, while still growing, are losing population to the areas beyond their corporate limits. In 1949, 61.9 per cent[4] of all families occupying new dwelling units in suburban Cook County gave as their previous address Chicago.

C. Population growth in "satellite rural" areas outstrips all other sections in rate of increase with an accompanying loss of population in the older agricultural areas outside of metropolitan districts.

The last enumerated trend may be indicative of an increasing specialization of agriculture and a closer integration to a cash market, with the metropolitan district defining the area of greatest economic efficiency. "Since, in areas of intensive farming, soil fertility and other elements of land quality constantly must be sustained by replacement, it can only be inferred that location with respect to cities is one element in the pattern of land maintenance for agricultural purposes."[5] In this respect agriculture is paralleling other economic functions long since drawn into the urban-industrial vortex.

The outward movement to the suburbs that assumed astronomical proportions in the 1920's, when some suburbs increased by as much as 3700 per cent in a ten-year period, is being surpassed today. Although Chicago contains 68 per cent of all families residing in Cook County, the suburban communities are granting three times as many building permits at the present time as is the city itself.

Industrial decentralization within metropolitan districts has been a fact, as well as a subject of concern to civic leaders for some time. The problems created vary with the type of city: Chicago, for example, maintains a 50-50 ratio between manufacturing and non-manufacturing employment; seven cities, scattered from New England to Wisconsin, maintain more than half of their populations by manufacturing; most cities depend primarily upon finance, real estate, insurance, professions, and the wholesale and retail trades for the bulk of their job opportunities. To the extent that a city has resources other than manufacturing to sustain its inhabitants, the decentralization of industry plays relatively little havoc with its stability.

Relocation of Chicago's plants from within the city to points outside of the city limits has been a factor in Chicago's industrial economy since 1903. In that year the Western Electric Company moved from Chicago to Cicero. Between 1925–35 one hundred and twenty-seven Chicago plants removed themselves to other sectors of the metropolitan environs. Between 1935–40 the figure ran to 154 relocated plants. That this trend has not slackened is attested by the fact that between 1946 and mid-1951 two hundred and fifty-two Chicago plants followed suit.[6]

In fact, a pattern appears to be taking form wherein light industry is replacing medium-sized industry within the city as the latter moves out. One interesting fact stands out in the decentralization movement, and that is, that of 252 plants relocating between 1946 and 1951, 58 per cent were previously located within four and one-half miles of State and Madison Streets.[7] In other words, the industrial congestion in central areas of the city apparently is breaking-up.

BURDEN OF FINANCE

What would be an estimate of dispersal costs? We have a sample right

[4] Housing Authority of the County of Cook, *Housing Market Analysis—1949 Supplement*, 33 North La Salle St., Chicago 19, Ill.

[5] Bogue, Don J., *The Structure of the Metropolitan Community*. Horace H. Rackham, School of Graduate Studies, University of Michigan (1949), pp. 133–34.

[6] Chicago Land Clearance Commission, *Redevelopment Project*. No. 3 (June 1951).

[7] *Ibid.*

in our own backyard offered by the Park Forest community development. When finally completed the community should contain 7,500 dwelling units according to present plans. It now has 5,500. The over-all cost estimate, including land costs, shopping facilities, community facilities, and so forth, is $125,000,000.

Seventy-five hundred dwelling units represent approximately .0075 or three-fourths of one per cent of the total number of dwelling units in Chicago. Accordingly, it would cost $16,662,500,000 to house Chicago's population in 133.3 "park forests." This figure would not include the costs of industrial dispersion, which would be materially higher because of the capital equipment and greater costs of transportation involved.

Last year the International Harvester Company built a plant in the Chicago suburb of Broadview which cost the sum of $5,353,698. Multiply a figure like that with the number of plants of comparable size, add the costs of providing water, sewerage, streets, roads, police and fire protection, and one can start visualizing the costs of complete urban dispersal.

Construction costs alone in furnishing comparable industrial and housing accommodations for Chicago's populace might total more than the semi-war budget of the national government today. A nation-wide program of resettlement would bankrupt the national economy.

And to do it, we would have to sacrifice radar networks, anti-aircraft batteries, and interceptor planes; ships, bombers, and artillery; cars, trucks, and locomotives; radios and TV; soil conservation and reforestation; scientific and technological experimentation; and the general effort to raise the level of living for many sub-marginal and low-income groups. We do not have enough resources to maintain our standard of living, continuously replace and improve upon our capital equipment, re-arm ourselves and our allies, offer economic aid to various nations, and at the same time carry on large-scale urban dispersal. New cities do not spring up out of the soil; they are built with labor, capital, and raw materials.

MISLEADING TENDENCIES

The prosperity and orderliness of some suburban communities may have deceived urban planners into believing that they see before them a pattern of organization which can be applied universally. This would be a false assumption to entertain. It is true that some suburban communities apparently provide their inhabitants with adequate municipal and social facilities, but those are mainly of the Wilmette and Oak Park variety (residential prestige suburbs of Chicago), few in number indeed, and composed of relatively substantial numbers of inhabitants in the upper-income bracket.

The majority of suburban communities are lacking in facilities capable of sustaining their respective communities. To the extent that suburbanites have to commute to the city for their jobs and other amenities—and a half-million commuters enter and leave Chicago on a typical day—the city subsidizes these communities. Despite industrial decentralization large segments of the Chicago metropolitan labor force work in Cook County.

Cook County provides employment for 89 per cent of its own labor force. It also provides employment for 44.1 per cent of DuPage County's labor force, and 24.1 per cent, 17.5 per cent, and 3.5 per cent of the labor forces of Lake (Illinois), Will, and Kane counties respectively.

A further indication of metropolitan intra-dependence is the fact that 31 per cent of all persons employed in Lake County (Gary area), Indiana, reside in Cook County, Illinois. These figures do not tell the whole story for the simple reason that "labor force" statistics are based on "employable persons 14 years of age and older." Obviously, there are large numbers of persons in this age category who are not seeking employment; for example, housewives. Actually, therefore, the dependence of the suburban areas on Chicago and Gary for employment is somewhat larger than the statistics just cited indicate.

It might be inferred from the above that population dispersal is taking place at a faster rate than industrial decentralization, although a more correct interpretation probably would indicate that despite population movement outward, certain types of occupations or functions definitely are geared to a concentration of operations within a centralized area. With the exception of the commuter traffic to Lake County, Indiana, the majority of commuters are of the white-collar variety.

PROBLEMS WITHIN DISPERSED COMMUNITIES

Decentralization is not without its problems. Studies completed by public and private agencies reveal that as the centrifugal movement of population increases, the problems of taxation, fire and police protection, water supply, sanitation, school facilities, and other municipal services become increasingly acute.

A survey of forty-six Cook County communities revealed that thirty-three of them lacked classroom space for their school population and are increasingly using half-day shifts or transporting children across school district lines. Twenty-nine per cent of these communities lacked adequate water supply. Eighty-nine of 147 communities in Cook County had substandard fire protection facilities (including lack of water). These suburbanites pay fire insurance rates up to 300 per cent more than their Chicago brothers without any consequent increase in better facilities—a double-barrelled dilemma.

If we are to think of civilian defense with any degree of real concern we should recognize the necessity of rectifying this situation. Imagine a wartime situation with these communities lacking adequate water supply and fire-protection facilities! While one of the best natural sources of water in the country lies in Lake Michigan, 129 municipalities out of the total 193 in the metropolitan area depend upon ground and well water. The elevation of these wells has been dropping at a rate of 6 to 10 feet per year, and the cost of digging deeper and deeper is becoming prohibitive. Furthermore, underground water is relatively free from contamination from above-ground sources such as The Bomb.

If we built a metropolitan water system operating out of Lake Michigan, we could conserve our well-water; and should an emergency arise, we would have this important reserve on hand. Engineers have given serious thought to this proposal.

Less dramatic, yet nonetheless essential, problems arising from population movement outward is the fact that out of the forty-six surburban communities of Chicago surveyed,

only five had anywhere near adequate shopping facilities, and thirty-four were found lacking in basic social and cultural amenities. Fiscal problems arise out of the fact that the majority of outlying municipalities have to rely on a non-industrial tax base, throwing the heaviest burden of taxation on home-owners, most of whom receive no income from their property. To a great extent this tax problem is hidden, although even the "revealed" portion of the problem is acute.

One hidden aspect comes from the fact that Chicago sells water to thirty-seven communities at 7.36 cents per 1,000 gallons (the rate will be raised by 50 per cent in the Fall of 1951). These communities sell to eleven other communities as well as to their own consumers. They sell to their domestic users at anywhere from 16 cents to 50 cents per thousand gallons; the profit of selling Chicago water is used to defray the costs of other municipal services.

Another factor to be considered in dispersal is the possibility that it may entail a reduction in our standard of living, or another way of putting it, increase the cost of living. This is not in reference to the "construction period" as such (which was mentioned before) but rather to the basic situation under dispersal. For instance, although suburbanites receive a reduced rate for electricity, due to the fact that the average suburbanite uses more electricity per dwelling unit than does the average Chicagoan, he still pays 15 per cent more per kilowatt hour. The reason for this is that the cost of tree-trimming is three times as high in suburbia, cables are more expensive to install, and the over-all cost of operations is higher outside the central city.

Likewise, telephone rates are adjusted in terms of volume in any one specific locale. Thus, it may cost a Chicagoan more to call Springfield than to call St. Louis because the volume of calls to St. Louis is greater. Consequently, although we would have the same number of persons with us under a dispersion, their distribution would have a telling effect on telephone rates. The examples of telephone and electricity are but instances of the general problem involved.

In a society based on a complex social division of labor with an economy geared to mass production and volume sales at key distribution points, the question can well be raised as to whether a too extensive and too rapid decentralization might not seriously impair the over-all economic efficiency that has made possible our high standards of consumption and our ability to protect our national interests. Are we to commit ourselves to a policy of regression out of a momentary passion of fear?

"Satellite areas" are appropriately designated, for without the city they would wither and decay. They are economically, culturally, and socially dependent on the "big city"; they are part of it. Cities are the progenitors of progress and enlightenment. The basic characteristic of the Dark Ages was de-urbanization and provincialism. While some argue that our possession of the Atom Bomb is the one deterrent to Soviet aggression, others are quick to point out that our 8 to 1 ratio of industrial superiority is an even more effective deterrent. It is one thing to make bombs and guns; it is quite another to be able to replace them in quantity. We ought not to impair that advantage, for in the long run it may save more lives and wealth than any immediate benefit derived from hasty dispersion.

A complicating factor in any dispersal program is the fact that in most cities, and especially Chicago, the areas of greatest density are the "Bronzevilles," the existence of which can be explained in large part by the resistance of adjacent areas to any dispersal of the Negro population. Forced relocation involves difficult problems of political controls and public opinion. In June 1951, the first Negro family moved into Cicero, Illinois, and was "greeted" by the Chief of Police and others who, allegedly, "welcomed" the family to leave town immediately, with fists being used as encouragement. The subsequent rioting afforded world-wide publicity to this very problem.

The Negro problem aside, any public policy of large-scale resettlement involves basic actions contrary to our principles of free mobility and free choice. Let us not forget that one of the first basic changes of democratic government was freeing labor from the soil and developing the institutions of the free labor and capital markets, including the right to move as one pleased. We must be careful not to become tyrants in our efforts to outmaneuver a foreign tyrant.

URBAN AREA CENTER OF UNIFICATION

A program of civilian-industrial defense must be based on the reality of the situation. The reality that confronts us is the fact that the area of integration is the metropolitan district, and each census tends to confirm this thesis more and more. The metropolitan district is a social-economic unity; it must be transformed into a political-administrative unity in order to create the flexibility and functional integration that will make it a sound base of organization, war or no war. Agriculture, industry, wealth, culture, knowledge, population, all are concentrated in the one hundred and forty metropolitan districts.

They are not the work of sociologists, but rather of natural forces emanating from the great urban centers. Their core cities are products of communication and human interest; they cannot be destroyed by government fiat or bombs. The basic structural handicaps of cities are legal.

Under the American habit, cities are not built for eternity. Each generation leaves a neighborhood something other than what it was twenty or thirty years ago. Consequently, the structural problems of cities are twofold:

1. Expansion of their corporate limits to make room availalbe for the mobile elder residents as newcomers occupy old areas;

2. Reconstruction of central areas due to new uses brought about by new types of population, age of structures, and need for adjusting the central areas to shifts in the over-all pattern of distribution engendered by population and industrial drift toward the outskirts.

BARRIERS TO EXPANSION

A major obstacle to rational restructuring of cities is the fact that annexation of adjacent territory usually is extremely difficult because of impediments embodied sometimes in state statutes or constitutions, sometimes in suburban resistances. If a city's boundaries were made coterminous with the metropolitan district, or at least a metropolitan government were established, we would not be faced with the spectacle of attempting to reduce density and rebuild slum areas without having available any really large tracts of raw land for relocation pur-

poses. As a city's density increases, the only solution is higher and higher structures in the central area.

Cities are vulnerable to air raids, not because they are cities per se, but because proper restructuring has not been carried through. There are many neighborhoods in cities that are characterized by low density, fine spatial arrangement, light industry, and so forth. Areas like these are not prime targets for bombs. Fine examples of this type of integration are found in every city. As long as the city is unable to expand its borders, such areas necessarily are limited in number.

Lack of readily available raw land prevents full-scale reconstruction of central areas. Reconstruction, to be feasible, must be done with new techniques. It cannot be accomplished on a lot-by-lot procedure even though that may have been the procedure in its original development. Furthermore, in a metropolitan system better use of vacant land zoned for industrial use in outlying county areas could be made. One cause hindering utilization of these zones is the inadequate development of water and sewage systems in outlying areas.

Chicago, by state law, is prevented from extending its water mains outside the city limits. This could be rectified under a proposed change, and decentralization of heavy industry dependent on surface transportation could be facilitated. This is a very significant point for the following reason: the great majority of plants relocating from Chicago to points outside the city are being transferred to the area immediately outside of, and adjacent to, the city limits. Sociologists, in their development of the concentric zone theory of urban growth, have missed one point. They have usually designated the area around the "Loop" as a "zone of transition" with mixed industrial and residential land use. What they have ignored is the fact that the area just outside of the city and reaching into the first "belt" of suburbs is also a transitional zone.

That the residents of these areas are finally waking up to the threat of industrial encroachment is attested by the recent court actions involving six communities and two firms attempting to establish, in the one case an oil refinery, and in the other a machine production shop. Incidentally, the heaviest population concentrations, outside of the city itself, lie in this first belt of suburbs (where one finds the "village" of Oak Park with a population of over 65,000).

Dispersal, as an attempt to outmaneuver the possible catastrophe of bombing, would be a mockery if it entailed nothing more than a shifting of location, with population and industrial concentrations still locked arm-in-arm. Dispersal has to be planned rationally, and that takes time. It has taken the developers of Park Forest five years to build 5,500 dwelling units, assemble and acquire the land, and so forth. A metropolitan program of limited residential and industrial dispersal should aim at inducing heavy industry away from residential areas by providing adequate facilities in the further removed areas. This would entail a metropolitan transit system geared to carrying passengers out of the city for employment as well as into the city. It is fair to say that our transit systems are not planned in terms of a work-population commuting to the suburban areas, and some sociologists believe the Chicago Transit Authority is missing a "good bet" by not exploiting this traffic even at the present time.

As industry spreads out and density is reduced, green belts could be interposed between neighborhoods. This latter would be of some significance because it is known that grass and trees are absorbers of light and sound as well as temperature-regulators. Since the greatest damage from the A-bomb is supposed to be caused by its "boom" and bricks hitting bricks, such green belts, combined with relatively low density, might serve as important shock-absorbers. Sound rational planning is one answer to the A-bomb. In this respect it should be remembered that Allied airmen, with saturation bombing, were unable to cripple Germany's industrial potential as much as expected because of well-planned placement and camouflage of plants.

INTEGRATION THROUGH EFFICIENT MANAGEMENT

In summary, what might be said about the proposals by some that we disperse ourselves into "garden cities"? First, the cost of such dispersal, even if it were desirable, would be so tremendous that other national programs including that of rearmament would have to be abandoned. Second, to the extent that adequate planning can provide for it, a limited dispersal of *new* production facilities would be desirable. Third, insofar as the large metropolitan areas themselves are concerned, a disorganized decentralization already is taking place at a rapid rate.

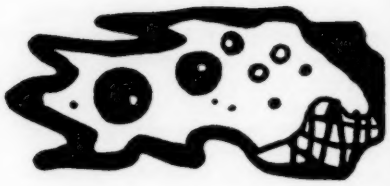
The problem, it seems to me, is how to reverse this costly trend to the extent that well-integrated, properly developed communities may grow out of the chaos of our urban centers of today. To meet successfully *all* the growing problems of modern urban living, including the threat of atomic attack, requires a reorganization of the metropolitan complexes into some rational governmental, social, and economic patterns. The overlapping, duplicating, wasteful, inefficient system of governmental organization must be simplified.

Responsibility for local governmental affairs must be more definitely placed, and this applies whether we are preparing to meet an atomic attack or are attacking a water supply problem.

In the Chicago area, for example, there are an estimated 1,600 units of local government, many of them with important governmental functions. The horrible spectacle of some suburban communities in this area in 1950 refusing to cooperate even in planning for civilian defense, the haggling over water supply, the perpetual fight over garbage dumps, the never-ending problem of industrial plant location, and the nightmare of seven major governments operating within the city of Chicago, all are symptoms of one of the gravest problems American democracy faces today.

Whether it be peace or war, local governments of the future will face tremendous problems. The development of strong metropolitan government, whether on a functional basis or through the establishment of a single governmental unit, is a prime essential of effective local government. Only then can one begin to think in terms of truly effective civilian defense planning, on the one hand, and proper "dispersal" within these metropolitan areas on the other hand. Planning which radiates from the basic proposition that cities are and should be here to stay may produce some positive results, good for war or peace.

INDUSTRIAL DISPERSION IN THE UNITED STATES



RALPH E. LAPP

Ralph E. Lapp will need no introduction to regular readers of the Bulletin. Author of the best seller, 'Must We Hide?", which was in part an answer to David Bradley's earlier book, Dr. Lapp has written frequent controversial articles for the general magazines—so many that it is sometimes overlooked that he has also been a leader in civil defense planning, as well as an advisor to several government agencies, such as the Office of Civil Defense, the U.S. Navy, the NSRB, etc.

WHEN this nation was faced with the task of mobilizing its industrial resources for World War II it undertook a vast construction program which ultimately increased the manufacturing capacity by 50 per cent and earned for the United States the title "the arsenal of democracy." Even in the 1940's when there were no atomic bombs to worry about the Office of Production Management established a Plant Site Board and to use the language of its summary report: "So far as possible an attempt was made to locate plants away from highly industrialized areas."

Many of the war plants built during the period 1940–1945 were located in sites, which were judged safe so far as attack with high explosive bombs was concerned, and a few were built well beyond the city limits. However, the danger from enemy attack was not critical and the Plant Site Board did not force its hand in dispersing U.S. industry to any considerable extent. The type of pattern for plant location may be called peripheral dispersion in as much as the establishments ringed the city.

Today the United States is well advanced in its industrial mobilization for what may well be World War III. American industry, although fortified by $106 billions of business expenditures for new plant and equipment since the war, has launched into a new program of industrial construction to fulfil the requirements of global warfare. A logical person might assume that the federal government would reconstitute a Plant Site Board within the Office of Defense Mobilization with the specific directive that it insure industrial invulnerability by locating new plants in non-target areas, or at least in sites well out of bomb range. The mechanism already exists for such site selection and, indeed, the basic policy has been advocated by the National Security Resources Board. However, in the first year of the present defense effort the policy of industrial dispersion has been only talked about and not put into effect.

INDUSTRIAL DISPERSION

Two Congressional committees have stressed the need for implementing a policy of industrial dispersion. Senator Joseph C. O'Mahoney's Joint Committee on the Economic Report has issued a careful study of the over-all problem and the Senator, himself, has sponsored an amendment to the Defense Production Act "to discourage the continued geographic concentration of industry." Another committee, headed up by Porter Hardy, Jr., has investigated the awarding of accelerated tax amortization through the instrumentality of certificates of necessity for new plant construction and it has sharply criticized both the National Security Resources Board and Mr. Charles E. Wilson's Office of Defense Mobilization for their failure to encourage industrial dispersion. A committee report states: "Under the present policy no effort is made by the government to control the location of new facilities through certificates; the selection of the site is left entirely to the applicant. Quite naturally, this policy results in further concentration of industry in areas favored by economic factors wholly without regard to the consideration of military security or the avoidance of knock-out blows in the event of a sudden enemy attack."

Not only has U.S. industry shown itself to be unmindful of the hazard of atomic attack in five post-Hiroshima years but even in the sixth year—the period of intensive mobilization for defense—industry has proceeded to build its factories, offices, and facilities as though the United States were somehow magically immune to atomic bombs. New plants have been erected within the congested areas of cities which any high school boy knows are prime targets for attack. Many other plants have been placed close to the city limits offering a token type of dispersion only to be invalidated within a few years by the continuous outgrowth of residential and industrial construction. Thus the marginal value of locating plants outside the built-up area of the city was soon lost as the city pushed outward in its rapid postwar growth, filling up the all important open spaces between city and plant.

Atomic scientists may justifiably wonder if government officials and industrialists have understood their preachments about the sound value of dispersion as a defensive measure against atomic attack. Certainly, the record would indicate that the scientists' words have not been heard, or, if heard, they have been reflected into outer space. A high order of insanity must invest a society that assiduously builds bigger bombs and blithely goes about making the best targets for such weapons.

Why has the government, or industry, persisted in its semi-suicidal pat-

tern of pre-atomic industrial development? Answers to this question will be found entangled in economic, political, and psychological factors. Three contributing causes can be described.

First, industrialists, finding they ran into no official rebuke, kept on grinding along in their time-honored rut of industrial location, picking sites on the basis of availability of labor, transportation, housing, power, raw materials, and on the basis of proximity to good supply and distribution centers. These are the usual factors considered in site selection. If any businessmen proposed voluntary dispersion they were frowned upon by those who argued that this would involve greater costs and would result in a lower margin of profit. Since the profit motive is the keystone of American business, industrial dispersion received an undeserved black name. This was more unfortunate, for it resulted from an adolescent concept of what is meant by dispersion. Many thought of dispersion in terms of locating plants in the badlands of the Dakotas or on the plains of Kansas. A high degree of effective dispersion can be achieved within the same state, often within the same county.

Second, the concept of bigger atomic bombs actually jeopardized dispersion rather than insuring it. Industry's planners were confronted with the problem of how large the plant to city limit distance, i.e., the dispersal distance, should be. This problem might have been uniquely solved had it not been for the premature birth of the H-bomb. Public acceptance of a thousand-fold more powerful bomb convinced many that "no place was safe" and you might just as well build your next plant inside a city. Every weapon, however, knows the limitation of space, and it is perfectly possible to plan safe industrial location even against the yet-to-be-born hydrogen bomb. No unque dispersal distance can be fixed upon for it depends upon terrain, upon the nature of the target, and upon the criticality of the proposed plant. In hilly country the distance will be much smaller than for a flat plain. As a general rule, government experts in consultation with the Department of Defense and the Atomic Energy Commission have agreed that a dispersal distance of ten to twenty miles is adequate.

Finally, a rather bizarre type of reasoning has grown up in this country. It is the assertion that our air force can obliterate Soviet industry and military strength so that the United States is secure from attack. When one pursues this argument and points out that "What is sauce for the goose is sauce for the gander," and therefore U.S. industry is almost certainly doomed to the same fate as that of the Soviets, the more so because our strategic effort is likely to be retaliatory in nature, one often finds a paradox. Supposedly intelligent men will argue that our air force can accomplish a lethal strategic strike at Russia and at the same time prevent the Soviets from dropping A-bombs on our concentrations of industry. Even General Vandenberg, Chief of Staff of our Air Force, testifying in the MacArthur hearings, has stated: "If the Russian air force has the atomic bombs and the ability to deliver them, we have an air force that can take the attrition that would be necessary to destroy that air force, and destroy it promptly; and after that, have a sufficient air force left to destroy the manufacturing potential of Russia. . . ." This statement contrasts violently with General Vandenberg's signed article (Feb. 19, 1951, *Saturday Evening Post*) wherein it is stated: "Should war come, we can be expected to destroy no more than 30 per cent of the planes making an attack in strength on the United States before their bombing missions are completed." Despite the contradiction, it would seem that this is another "goose-gander" problem; if we penetrate Soviet defenses, it must be assumed that the Soviets have the ability to strike at our homeland.

CONCENTRATION OF INDUSTRIAL FACILITIES

Looking closely at our industrial strength, as though through Soviet eyes, it is easy to diagnose our atomic ills: our industrial facilities are too strongly concentrated within about fifty prime target areas. The prescription for this dangerous ailment can be given in one word—"disperse." Putting such a policy into effect will be extremely difficult, for America is already far advanced in its Industrial Age, and the geographical pattern of its production facilities is fairly well established. Any sane program of dispersion must begin with this status quo of industry—take into account the enormous fixed investment of industry in its plant and equipment. It must also recognize that in effecting dispersion, the backbone of our production capacity must not be dislocated, so that the flow of defense goods to the armed forces is reduced. Furthermore, the spirit of competitive enterprise in business must be maintained.

At first, it might seem that any conceivably effective program of dispersion would be impossible of realization. However, there are important factors which make the goal not too distant nor too impossible of attainment.

NOT ALL INDUSTRY VULNERABLE TO ATTACK

Not all industry is essential to defense. The War Production Board is authority for the statement that ". . . great as our war effort was, at no time during the struggle did it absorb more than two-fifths of our total national output." *Nor is all defense industry vulnerable to attack.* No one has yet published an estimate of how much of our industry is both critical to defense and vulnerable to attack, but the fraction is probably less than one-third of the total industry. (Both the Facilities Protection Board of the National Security Council and the Industrial Evaluation Board of the Department of Commerce are known to be assessing the criticality and vulnerability of U.S. industry, but the studies have just begun and no results will be available for some time.)

Even one-third of American industry is a staggering complex of plants and facilities to consider for dispersion, but we do not propose to uproot these installations and replant them in safe locations. This would not only disrupt our present defense effort but it would disjoint our entire national economy as well. The dollar cost for such an operation would probably run to about $90 billions.[1] Since we are spending $23.9 billions for new plants and equipment in 1951, it would seem at first that replacement of critically important, vulnerable industry, would be possible in several years. However, the dollar costs are only part of the picture; one must also consider the supply of building materials, labor, housing, and all the other factors which back up the production line. Nonetheless, a very considerable fraction of U.S. industry could be replaced within a decade; but no such program is in operation.

[1] Figures are taken from an article "Industry Forgets the A-Bomb," published in the August 7, 1951 issue of *The Reporter*. The author wishes to thank *The Reporter* for permission to use these and other data from the article.

Perhaps it is well to ask bluntly: "What does the government propose to do about dispersion? Does it have a planned program?"

No official statement of policy has been announced by the federal government but it is understood that one is expected from the White House momentarily and in fact may have been issued by the time this appears in print.[2] In 1948, the National Security Resources Board published a brochure *National Security Factors in Industrial Location*[3] in which dispersion was advocated. However, the NSRB publication was an expression of attitude rather than a pronouncement of policy. With the issuance of the brochure, planning for industrial dispersion was continued by NSRB but was laid aside, both by that agency and by the newly created Office of Defense Mobilization, when the Korean War broke out.

REVITALIZATION OF GOVERNMENT DISPERSION PROGRAM

Now that the government has approved some seven billion dollars of tax certificates and industry is well on its way to erecting the facilities to turn out defense goods for the rearmament drive, NSRB has revitalized its dormant dispersion program. Both the Department of Defense and the Office of Defense Mobilization have belatedly agreed that new plants should be located so as to improve the nation's security. Other government agencies have also promised to apply pressure to industry so that further concentration of production facilities in target areas will be averted. However, this harmony of view could only become effective if solidified by an Executive Order from the White House.

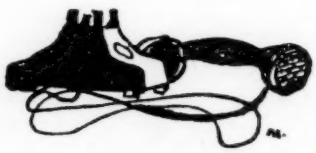
Before the President signs a policy statement committing the various government agencies to a firm program of industrial dispersion, he must grapple with the political implications of the move. The Congress has already shown in several stormy sessions that it considers industrial dispersion to be political dynamite. Many Congressmen, especially those from the New England states, have jumped to the conclusion that the Administration proposes to rip plants out of the Northeast, and spread them throughout the prairie states. They are haunted by the precedent of the Chance Vought Company, abruptly relocated from Connecticut to Texas, and have visions of a multiplicity of such moves.

While it has not yet been formally announced, it is certain that the government's policy of dispersion will be to recommend the location of new plants within the market area of a city, but far enough from the centers of concentrated population and existing industry, so that the new facilities will be out of the range of bombs dropped on these centers.

Industrialists are thus still left with great latitude in site selection, for the government does not propose to direct plant location but rather to reject site choices if they prove inimical to national security. One can find little wrong with this solution which recognizes the importance of economic factors and seeks to reconcile them with the national security.

THE SEATTLE PLAN

A plan of this type has been put into operation in Seattle, Washington, as a kind of pilot plant study for the whole nation. NSRB experts have evolved this plan in cooperation with the Seattle Chamber of Commerce. New industrial sites, five, ten, and fifteen miles from downtown Seattle, have been selected for development. The government hopes that the Seattle Plan will be adopted by other cities and that a sound policy of industrial dispersion may result from this experiment.



The Seattle Plan is basically sound and its success in the Seattle area seems probable for three reasons. First, Seattle businessmen were taught a severe lesson when Secretary of the Air Force, W. Stuart Symington, directed that the production of B-47 Boeing jet bombers be transferred from Seattle to Wichita, Kansas. The Seattle Chamber of Commerce saw the handwriting on the wall and when approached by NSRB with a workable plan of dispersion for industrial security, it quickly accepted the idea. Second, the City of Seattle has a metropolitan area population which ranks twentieth in the nation; thus it is still a fairly modest metropolis, without many of the industrial headaches of Detroit, Chicago, or Philadelphia. A plan which is excellent for Seattle, may be not too satisfactory for Detroit. Third, the country surrounding Seattle is such that good industrial sites are partitioned off by hilly terrain and large lakes. The Seattle type of dispersion can only be effective if open space is permanently maintained between industrial sites; this is insured by the local terrain, but such would not be the case for Chicago or a score of other cities.

In adapting the Seattle Plan to other municipalities, the government must, of course, specify modifications, but will retain the same principle of establishing new industrial sites ten to twenty miles from the densely populated and highly industrialized centers. The exact distance will have to be worked out for each target area. Some restrictions, equivalent to zoning laws, will have to be put into effect to prevent the intervening open spaces from being filled with new industrial or residential construction, for unless permanent open space can be maintained, the Seattle Plan will not achieve maximum effectiveness.

EFFECTIVE DISPERSION MUST PROTECT BOTH PLANTS AND LABOR FORCE

Spreading out factories into a less vulnerable pattern will be only a partial protection for industry, if the worker force needed to run the plants remains condensed in the metropolitan area. If, however, the dispersal distance is great enough, masses of labor will gravitate to the sources of their income, so that a sound policy of dispersion can accomplish the protection of both the plants and the labor force. Workers in critical industries must be encouraged to take up residence outside the cores of metropolitan areas. Unless the critical labor force is so dispersed, an enemy may elect to stop the wheels of American industry by carrying out saturation raids on the metropolitan centers, on the theory that it is easier to hit at the man behind the lathe than at the lathe itself.

Statistics on the population of our metropolitan areas are most alarming. For example, our twelve largest metropolitan cities contain a total of twenty-three million people. Some consolation may be found in the fact that an additional twenty million live in the

[2] See page 264 of this issue.

[3] *Bulletin*, October, 1948, p. 316.

same metropolitan areas outside the city limits. Many metropolitan suburbs may be considered relatively dispersed but, in most of them, the principle of sound dispersion has been doubly violated. First, the distance from metropolitan to suburban center is too small; in fact, the two often adjoin each other. Second, such open space between the city and the suburb as existed initially, has long since been filled with dwellings, so that the metropolitan area has become one huge target rather than a cluster of individual targets.

Just as U.S. industry, concentrated in a relatively small number of centers, seems too colossal an aggregate to be attacked with the instrument of dispersion, so, too, does the conglomeration of people in even fewer centers seem to be irreversible. While these centers are extremely vulnerable to atomic attack, almost impregnable political armor protects them against any attack by dispersal forces. This is one of the reasons why the government will strongly favor a type of dispersion which retains the plant within the market area of the city to which it now belongs. Civic officials will not raise serious objection to the location of *plants* ten or even twenty miles from the city, since this is well within the city's market area, and the city will still benefit from their presence. If, however, the city itself is to lose many residents, civic objections will be very strenuous.

The same philosophy adopted toward plant dispersion must be used in the case of the worker's residence. New residential construction should be encouraged in non-target areas. As old dwellings obsolesce in the centers of target areas, they should be torn down and not replaced. The Federal Housing Administration should refuse to grant aid to those seeking to cram more buildings within the heart of a metropolitan area. Such measures will result in gradual depopulation of the target centers and a build-up in the outlying regions.

Those who are opposed to dispersion as well as those who are lukewarm about it, seize upon the word "gradual" and immediately point out that nothing of significance can be accomplished before we have a showdown in Europe. The date for the latter is often mentioned as "about 1953." How does one meet the argument that dispersion can hardly get started within two years? One way is to point out that there is nothing sacred about the 1953 deadline and that we may well be subjected to the stress for a decade or longer before it is decided whether the East and West take to the battlefield. But there is a much more sound approach—that is to simply acknowledge that an across-the-board type of dispersion cannot make more than a dent in our industrial-population complex within two years. If we are to achieve any significant degree of dispersion in this time period, the approach must be highly selective. The concept of *selective* dispersion is new and requires a cold-blooded analysis of what is critical to our national defense.

SELECTIVE DISPERSION NEEDED—EVEN BEFORE AN ATTACK

One way to illustrate how the analysis might be applied to a single city is to imagine that an atomic attack has just occurred on a major industrial center. Assume that a survey party, consisting of General Bradley, Mr. Charles E. Wilson, and local civic leaders, tours the stricken area to assess the damage and to estimate what productive facilities must be restored. Remember that now war has broken out and the nation is fighting for its very life; political factors are out the window and sheer survival is the problem. On this basis, the survey party selects only those plants which are absolutely essential to the existing military needs. Department stores, laundries, restaurants, and scores of purely civilian or home consumer facilities are written off as non-essential. So, too, are industrial facilities which cannot be quickly converted to war production. Top priority goes to those defense plants which can produce the war goods most urgently needed by the armed forces. Defense plants which have been destroyed will not be considered for relocation but much of the intact equipment may be transferred to an outlying factory which survived the disaster.

A critical survey of this type should be conducted now and those installations selected as most critical to the national defense should be given top priority in relocation. Such a selective program of dispersion involves the potential sore spots or bottlenecks of industry and while percentagewise only a small part of defense industry may thus be made invulnerable through relocation, what is thus dispersed will be of crucial importance once an attack takes place. It would be folly to extirpate these supercritical plants without making provision for the protection of the worker force. The relocated plants can be assured in the initial period of at least partial safety of its working force by instituting multiple shifts, so that, as a minimum, one shift will be in the factory whenever the attack may come. Longer term planning will have to provide for rehousing of labor in non-target areas.

The record of production experience in Germany during the last war bears out the wisdom of selective dispersion. Special industries, such as the ball bearing plants, those making aircraft components and others, were given high priority protection. When the bearings industry, concentrated heavily at Schweinfurt, was seriously disrupted by a determined Allied bombing raid, the manufacture of bearings was parceled out to more than a dozen dispersed locations, some of which achieved additional protection through underground construction. Except for the shortages caused by direct bomb damage and momentary loss of production during relocation, the antifriction industry continued to supply the Wehrmacht with all the bearings which were required.

Germany was subjected to a merciless bombardment of high explosives and incendiaries for many months. Bomb damage was scattered, piecemeal, and, only in a few cases, so concentrated that it approached the saturation nature of atomic attack. Hitler had time to disperse and otherwise protect his besieged war plants, and the German record of wartime production is a remarkable one. Had the bomb damage inflicted on Germany been compressed into the span of a few nights rather than years, it is certain that its industry would never have survived. There would have been no time to disperse. This is the very important lesson which must be learned from the German example. If our industry is to be protected, the steps must be taken in advance of the attack, not after the atomic blitz has occurred.

By implementing a planned program of dispersion this nation can erect a system of permanent defenses against the atomic bomb and its big brother—the H-bomb. These defenses will be truly permanent and will be of lasting value in war or peace, quite in contrast to the military defenses which have a very short half-life of effectiveness. Not only are the active military defenses measured in terms of a few years for effectiveness, but within this period they are not guaran-

teed to be of high reliability. Not even the most sublime optimist, aware of the technological advances in modern weapons systems, believes that America can be transformed into an impregnable fortress, invulnerable to the enemy's A-bombs.

Six years have passed since Hiroshima. Each succeeding year has seen the world brought ever closer to the brink of an atomic war. An all-out atomic armament race has ensued. During these years the Kremlin has directed a widespread dispersion of its industrial facilities. Yet in spite of this example and the self-evident danger of a devastating attack upon our concentrated industry, our government has been too timid to even demur when more and more factories were crammed into prime target areas. If one were of Senator McCarthy's mental inclination, one would suspect that the Kremlin masterminded our postwar industrial expansion, for it is all that Soviet target analysts could hope for.

At this late date it might seem improvident to press for the dispersion of our industry. The hour is admittedly late but the past six years have failed to uncover any suitable substitute for dispersion so it must be adopted now in the hope that a selective program of dispersion, complemented by a broader program, will at least partially secure our industrial ramparts. Failure to undertake these security measures now may be equivalent to writing a death certificate for our industry in the event that our homeland is attacked. Future historians looking back on the early phases of the Atomic Age may well record that America's downfall had its origins in a short sighted policy of industrial production which neglected its obvious vulnerability to atomic attack.

THE BLIGHT OF OUR CITIES

GOODHUE LIVINGSTON, JR.

Mr. Livingston for years has been interested as a citizen, and through his work as Commissioner of the Department of City Planning of the City of New York, in the traffic and housing problems of that metropolis. Now he asks "Why is it that the Mayor of the largest city in the world states publicly that his citizens have no intention of changing their mode of living or their business habits, come what may?" He argues that present technology, even without the bomb, makes it "irrational to keep building up congestion, with all its horrors and dangers."

CIVIL defense is as important toward waging modern war as military defense. What is done or not done to strengthen it in all its phases may spell victory or defeat. Prophecy as to if or when it will be needed is hazardous, as anything can happen. It is safe to say, however, that under present world conditions we are not complete masters of our fate, and it is therefore only prudent to undertake immediately every precautionary step within our power. In fact, to do otherwise would be criminal negligence.

To date no action has been taken on the sole measure which appears to be the only real insurance against untold losses, if not complete destruction. Dispersion of industrial plants and their workers is vital to the country's safety in atomic war. It would also prove a permanent blessing in a peaceful world.

If war does come, many American cities will be partially or completely destroyed, along with a high percentage of their population. Our military leaders have stated that there is no tactical defense against atomic weapons. They have estimated that 60 per cent of enemy bombers can be expected to break through and reach their targets. It should also be remembered that there are other means of delivering atomic bombs than through the air. Today 52 per cent of American industry is concentrated in thirty-five heavily congested areas. Over 50 per cent of our population live in cities of over 100,000. Sixty per cent of our population lives in urban communities which occupy less than 3 per cent of our total land area. It is reported that our strategic air force is pin-pricking enemy production targets on maps. It must be taken for granted that our foes are doing likewise. Our industrial potential is the margin between victory or defeat. The enemy knows that only too well. It has been clearly demonstrated in both World Wars.

Up to now the efforts of the civil defense authorities have been directed solely along remedial lines. Decentralization as the only means of lessening the deadlines of an atomic raid has not been given serious consideration. Dispersion has proved its value on more than one occasion in the past. It was employed successfully against the high explosive bombing in World War II.

CONCENTRATION OF INDUSTRY IN GERMANY

One notable example which stands out and is worth mentioning was the concentration of German ball-bearing production in Schweinfurt. Anti-friction bearings are especially critical in aircraft production, as well as for power plants and military instruments of many kinds. In August 1943, bomber raids were started for the purpose of destroying this vital enemy production. Even though these raids were extremely costly to Allied bombers–due to the depth of penetration they could not be escorted by fighters–the air command continued them through December 1944. The German high command, who at first believed Schweinfurt was safe from our bombers because of the distance and flak-fighter protection, was soon jolted out of such preconceived ideas. They directed that the ball-bearing industry

be dispersed. Thirty-two new production sites were chosen. Some of the new buildings were put underground. This occurred between November 1943 and August 1944. In April 1944, partly as a result of our raids and partly because the process of dispersion slowed up production, the ball-bearing output was reduced to roughly 50 per cent of the pre-raid level. By September 1944, production was back at pre-raid level and shortly afterwards surpassed it.

Under a dictatorship dispersal of factories and population becomes relatively simple. It can be presumed that the Soviet Union is following such a policy and that if our bombers are called upon to take off in retaliation of a surprise attack on our industrial centers, only ghost targets where real ones are indicated will be found. To date dispersion in the United States has been political dynamite. The President's proposal to disperse important government functions now concentrated in a small Washington area has been generally derided. At the moment it is clearly inconceivable to think that a Congressman would vote to move a defense factory out of his district or even out of his state. Chambers of Commerce and real estate interests deplore such ideas. In fact, they bend every effort toward increasing congestion in overpopulated areas.

CIVIL DEFENSE IN NEW YORK

In the New York City official civil defense brochure published recently, the following statement appears: "The time has come to budget this program realistically and without melodrama and hysteria. As the Mayor has stated, New Yorkers would not take to the hills, go underground, abandon the City, or change their mode of living or business habits, especially in view of the fact that this so-called emergency may last a long time and that no bombing may occur, and that the time, nature, and extent of any catastrophe cannot be exactly charted or measured." This policy appears to be little less than unadulterated wishful thinking. It is deplorable that such an unrealistic approach is taken in the face of our present extremely critical situation. On the other hand, perhaps it is only to be expected because of the type of wishful thinking still so prevalent among certain powerful groups.

The metropolitan area of New York, with its seaport, heavy concentration of industry, technical and business brains, and its 15,000,000 inhabitants, is certainly high on the enemy's list for destruction, if not the No. 1 target. It can be taken for granted that more than one bomb would be delivered, perhaps as many as eight or ten, to make certain that a complete knock-out was achieved. If the first raid did not accomplish that mission, others would unquestionably be attempted.

DISPERSAL ONLY INSURANCE AGAINST SURPRISE ATTACK

It is not my purpose in this article to dwell on the gruesome horrors that would be left in the wake of such attacks. They are better left to the imagination. However, it is truthful to say that the London blitz and the concentrated bombing of German cities in World War II would be mild in comparison to the punishment New York and other large concentrations would take in a future war. The scientific spreading-out of defense factories, following a national plan, could be relied upon to reduce casualties among the civil population by many millions. It is the only real national insurance available against a surprise knock-out blow.

If such a program were undertaken, it would keep the United States in the ring and fighting back until our full strength could be mobilized. A-bombs and H-bombs cannot be turned out in mass production as were the World War II block-busters. These bombs take time to make in quantity and are frightfully expensive. They are most effective against mass concentrations of population. Their psychological effect, plus the damage they inflict on such types of targets, is terrific. The enemy without doubt would keep pounding away with their limited bomb supply on such targets. Why should they waste them on more decentralized ones? All-out atomic attack on the metropolitan area of New York could be relied on to dislocate its war effort for many months. It would be devastating to the morale of those war workers who, physically unhurt, might find their way back weeks later to the factories that were still operable.

Much has been written on this subject by those in a genuine position to know, among them many nuclear scientists, members of the Atomic Energy Commission and the National Security Resources Board. This criterion for the most part is understandable to anyone with a mentality of a child of ten. Why is it then that the government officials in charge of civil defense who are constantly urging citizens to do their part remain mute on the importance of decentralization? Why is it that the Mayor of the largest city in the world states publicly that his citizens have no intention of changing their mode of living or business habits, come what may?

A part of the answer to this enigma may well be found in the reluctance of the average person to make an abrupt breach with the manner of living he has been accustomed to, even though his failure to do so may cost him and his family individual destruction, as well as threatening the very life of the nation. The little man, the average employee in an office, the worker in a factory, even if the wish were there, cannot by himself take steps of this protective nature. His financial resources are limited, and in order to support himself and those dependent upon him, he must remain where his job is located. Relocation of industry both new and old therefore depends on *management*. To attempt such a policy, management must have the help of the government in the shape of a national plan.

In spite of the fact that the average mortal fears change worse than the devil fears holy water, many of the vested interests still hope that war can be averted. They also remain convinced that congestion, with all its evils, benefits their pocketbooks. Therefore, even in this atomic age, with the Damoclean sword of annihilation hanging over their heads, these groups raise the old wolf cry that dispersion under government supervision would jeopardize free enterprise. Let us examine their arguments.

First: If global war does come and our industrial centers are destroyed, a very high percentage of capital investment will be wiped out. This destruction occurring under our present set-up will by its nature be so colossal that even though we should win and still have the opportunity to rebuild, such rehabilitation will have to be done collectively—that means completely by the federal government. Thus socialism, at least to the degree to which Great Britain was forced, will have come to our shores. Atomic bombing on a large scale in our present posture can destroy not only life and property but social and economic systems as well.

If, on the other hand, industry and labor become willing to cooperate with the federal administration toward producing a scientific and orderly plan

to build new plants in safe, strategically located spots, the cost in both lives and capital investment would be greatly diminished if war does come. The part that the federal government would then be forced to play after the storm was over would be much smaller, and the chance for survival of free enterprise would be greatly increased.

Industry normally spends twelve to fourteen billions annually for new plants and additions to old ones. This figure will increase as our defense effort continues to mount. For this reason, dispersion under a proper plan should not take as long as some are prone to believe.

The A-bomb stockpiles on both sides grow with every month that passes. In the same ratio, the size of potential destruction multiplies. Even if Congress wakes up to the fact that the spreading out of industry and population may be vital to the nation's survival and belatedly allows such a plan to move forward, civil defense within our cities must be built in a realistic manner. Any long-range construction programs that are undertaken for this purpose should perform a useful function in peace as well as in war.

THE CONGESTION OF CITIES

Today our larger cities are plagued by traffic congestion. Choked streets, with movement as sticky as molasses, shattering the nerves of even the strongest, and costing business untold millions, is one of our greatest menaces in case of enemy raids. The parked cars that lie night and day on the pavements greatly magnify the fire hazard. Scientists are of the opinion that the conflagrations which are apt to occur after bombing can be more destructive of life and property than the atomic blast itself. Therefore, firebreaks as used in fighting forest fires should have a high priority in civil defense programs. Such firebreaks, carved out through presently crowded industrial and residential areas, if used as vehicular express highways, will greatly ameliorate congestion by allowing through traffic to by-pass city streets. In case of bombing, such arteries will afford a means of escape to thousands who otherwise will be burned or suffocated to death. They will afford the path along which fire fighters, rescue parties, and demolition squads can penetrate into the devastated areas.

In this connection, tolls should be considered. Users of motor vehicles of all kinds today are the beneficiaries of many millions of tax dollar subsidies. It seems only equitable that they should bear a large part of the cost of the improvements that so directly benefit them. The municipal traffic problem is much discussed. However, to date, only infinitesimal action toward its cure has been forthcoming.

In the case of major seaports the protection of harbor installations and the personnel who man them should be given the highest consideration by civil defense authorities. Their continuing operation, regardless of enemy action, has been proved to be vital in a war effort. Future piers should be constructed in such a fashion as to render them impregnable to blast or fire. Shelters for dock workers should be built in the same manner. In times of peace these shelters could be used for pier sheds and warehouses.

In the case of New York City, the Port of New York Authority in recent years has made several offers to rehabilitate the port in a scientific and efficient manner. These offers have been turned down. To date the municipalities involved have had neither the will nor the funds to do the necessary job. The waterfront is far from prepared to function under conditions which modern warfare will impose.

Another sample to illustrate the direction civil defense should be following is railroad transportation. Railroads converging into terminal target areas should work out plans enabling troops and their equipment to be moved around such spots if a catastrophe occurs. In the case of seaports, arrangements should be made so that the armed forces can reach ships in harbors without lengthy delays. All such arrangements must take into consideration civil evacuation as well.

The coordination and operation of all public transport within the New York Metropolitan area in the hands of a controlling authority is becoming an increasing necessity to furnish the required service in times of peace. It might prove vital in war. To date this matter has received no real consideration.

Preparing for remedial action on the part of the civil defense authorities alone, although important, will not be sufficient by itself toward achieving victory. It is surprising that the Department of Defense has not given active support to a decentralization program. An all-out sneak attack upon our densely populated concentrations might well incapacitate several potential army corps, even before their personnel had been incorporated into the armed services. Certainly our armies, the navy, and the air force would be rendered impotent if supply lines are destroyed and industry crippled. Organized labor with millions of its members now living or working in prime target areas certainly should be concerned.

Aside from a very real threat of atomic destruction, our larger cities are now facing problems which under our present arrangements appear nearly insoluble. We cannot continue to view with complacency street congestion, noise, dirt, filth, mounting crime, overcrowding of schools, beach pollution, inadequate and uncoordinated public transportation, insufficient water supply, inadequate hospital and health facilities—to name only a few of our present painful municipal headaches. Heavy taxation to support astronomical budgets has failed to date to cure them.

The present age of technology, measuring, as it does, communication and travel time from the most far-away points in seconds and minutes, makes it quite irrational to keep building up congestion, with all its horrors and dangers. The average man throughout the world is seeking a better, more secure, and healthier life. This is the basic meaning of the world social revolution now in progress. The end of this human upheaval cannot even be dimly seen on the horizon.

If we are wise and intend to retain our individual liberties, a reorientation in our thinking about city development becomes paramount. Practical, modest steps toward dispersion following a scientific national plan so as not to disrupt the production of industry unduly are called for. There are still many among us who are vigorously opposing such action for selfish reasons. The irony is that, as the world stands today, these people are in danger of losing not only their personal wealth but their very liberty as well. If they are allowed to have their way, we shall all be dragged down with them.

The building of new towns and the proper planning toward increasing moderately the size of smaller ones will serve the dual purpose of giving us more immunity to atomic warfare, as well as creating a better, richer, fuller life for all. The stretch of the world's history in which we live brings many dire threats, but it offers great opportunities as well, provided, of course the human race has the will, the vision, and the fortitude to grasp them before it is too late.

NATIONAL DISPERSAL PROGRAM FORECAST BY PRESIDENTIAL STATEMENT

Six years and four days after the bombing of Hiroshima, the President of the United States formally recognized the need for avoiding so far as practicable "concentrations" of industry in the age of the airplane and the atomic bomb. On August 10, the President issued a brief statement, which follows, and the National Security Resources Board issued a basic statement of policy and a more detailed printed booklet, "IS YOUR PLANT A TARGET?" The President's statement follows.

There is hereby promulgated, effective immediately, the attached Industrial Dispersion Policy which I have approved on the recommendation of the Chairman of the National Security Resources Board, the Director of the Office of Defense Mobilization, and the Chairman of the Munitions Board.

This policy shall be adhered to by all departments and agencies with respect to programs under their control.

The Director of the Office of Defense Mobilization, in carrying out his task of directing, controlling, and coordinating all mobilization activities of the Executive Branch of the government, shall establish general standards with respect to dispersal, which shall be followed in the granting of certificates of necessity, in the allocation of critical materials for construction purposes, and in the making of emergency loans growing out of defense production.

I shall look to the Chairman of the National Security Resources Board to keep me advised on the progress of this program.

HARRY S. TRUMAN

NSRB DISPERSION POLICY

The National Security Resources Board, under Acting Chairman, Mr. Jack Gorrie (who writes a separate article on dispersion elsewhere in this issue of the Bulletin), elaborated on dispersal policy with the following statement, issued jointly with the Presidential statement. The entire text of the separately-published booklet for plant managers and civil defense planners follows on succeeding pages of the Bulletin.

The strength of our national defense and in fact our continued existence as a free nation depend largely upon our industrial capacity. The core of this capacity, so essential to our survival, lies within a relatively few densely built up centers.

Since 1945, we have experienced a period of unprecedented industrial expansion, but, except for a few examples, there has been no pronounced trend away from these concentrations. Some eighteen billions in new plants and equipment were spent annually during the past four years, largely in areas already highly industrialized.

Although we are increasing our defense efforts, the danger of atomic attack grows and demands that new and more positive policies be put into effect to obtain added security for our industrial establishment without jeopardizing its productive efficiency.

In September 1948, the government, through the National Security Resources Board, issued a report, *National Security Factors in Industrial Location*. The report stressed the fact that dense agglomerations of industrial plants were inviting targets for the enemy and that plants separated in space would better survive an atomic attack.

These general conclusions are as sound today as they were three years ago. On these first principles of security our basic policy still must rest.

Since publication of this report, several factors have added to the urgency of the problem:

1. The evidence that Russia had a successful atomic explosion.

2. The probability that a strong enemy air attack could penetrate any defenses.

3. The outbreak of hostilities in Asia as an indication of the semi-peace conditions under which we are living.

Obviously, in the light of the above, what was, in 1948, a set of desirable objectives, is today a subject of major concern and one vital to our national security.

It is recognized that the major centers of industrial production have become highly integrated and that a part of their efficiency is due to their concentration. A dispersion policy to be effective and realistic must not be allowed to cripple the efficiency and productivity of our established industries, lest the remedy become worse than the ill. Our policy, therefore, must be directed mainly toward the dispersal of new and expanding industries.

Sites which meet dispersion security standards can be found in local marketing areas adjacent to industrial or metropolitan districts in all sections of the country.

Thus, this policy can be made to fit the economic and social pattern of any part of the country.

The fullest cooperation of industry, labor, and local and state governments, together with all of the measures which the federal government can take, will be needed to alleviate the present situation. With the necessary technical guidance as well as the positive inducements which we will give, much can be accomplished.

All departments and agencies of the government concerned with this problem will be called upon in carrying out a coordinated policy leading to effective industrial dispersal within the concepts described above.

To this effect, the following measures will be taken;

1. To the greatest extent practicable, certificates of necessity, allocations of critical materials for construction purposes, and emergency loans growing out of defense production will be confined to facilities which meet satisfactory standards of dispersal.

2. Primary consideration to dispersal factors will be given in locating facilities built by the federal government.

3. Defense contracts will be awarded, and planning under Department of Defense production allocation programs will be conducted in such a manner as to make maximum use of facilities located in dispersed sites.

Official

DISPERSAL RECOMMENDATIONS

Of the NATIONAL SECURITY RESOURCES BOARD

FOREWORD

The risk of an all-out atomic attack on the United States grows greater each day, since we are no longer the sole possessor of the secret of the atomic bomb. This means that no industrial area in the Nation can be considered safe from attack.

The protection of industrial production is essential to survival in case of war. Increased and sustained production is the backbone of national security.

To assure continued superior American production, new industry is being established, and established industry is being expanded at the rate of an estimated investment of twenty-three billion dollars ($23,000,000,000) this year.

This productive capacity must be protected. The dispersion (or deployment in space) of *new* plant development for war-supporting industries can make American production less vulnerable to attack. New studies on protection of industry through dispersion have been made in the field.

THE PRINCIPLE OF INDUSTRIAL DISPERSION:

These studies clearly blueprint certain common-sense principles. They also hold promise of long-range economic benefits for the Nation.

Industrial dispersion is the employment of the simple military measure of using *space* for defense against attack. Space is employed on the battlefront to protect men and supplies. This creates a multiplicity of targets, and thus reduces the vulnerability of any one concentration.

Just as a good commander in the field deploys his men to protect them, so the home front can secure the same advantages by putting space—perhaps only several miles—between industrial facilities.

THIS IS THE PROGRAM TO ACCOMPLISH INDUSTRIAL DISPERSION:

(1) *It is designed to disperse new industry and expanding industry—not to move established industry.**

(2) *No region of the country is to be built up at the expense of another.*

(3) *Industrial dispersion can be carried out if such deployment is confined to each local marketing area.*

(4) *State and local governments, in cooperation with private enterprise, are called upon to take the initiative in this defense objective. The Federal Government will provide encouragement and technical guidance.*

Industrial dispersion within local marketing areas will make it more possible for the United States to continue the production and delivery of essential goods and services during war.

The long-range objective of industrial deployment is to carry out a natural industrial expansion away from congested centers. This movement has been under way for a number of years. A speed-up of this natural expansion is an urgent security measure.

The recommendations presented here are based upon experience gained from an actual industrial dispersion pilot operation conducted in one of our production centers. These recommendations are flexible guides for doing an industrial dispersion job. They can be adapted for the varying industrial dispersion problems of all sections of the Nation. Above all, the recommendations for industrial dispersion presented in this report recognize that the job can best be done by private enterprise with cooperation and guidance of national, state, and local governments.

—Jack Gorrie
Acting Chairman
National Security
Resources Board

* In certain special cases, usually where total expense of the plant is upon the Government and where the product is peculiarly critical, the Government will direct exceptions to this rule.

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from the official
U.S. government report
"Is Your Plant A Target?"

INDUSTRIAL DISPERSION AS A NATIONAL POLICY

The first atomic bomb was exploded at Alamogordo, N. Mex., on July 16, 1945. Since that time the United States has exploded many others. These include the explosions over Hiroshima and Nagasaki and those set off in tests at Bikini, Eniwetok, and Frenchman's Flats, Nev. During this last 6-year period, our stockpile of bombs has increased. In addition, new discoveries and improvements in atomic energy developments and in bomb construction have enabled us to make more efficient use of our fissionable materials.

While our atomic energy program has gone forward, however, Soviet Russia has not been standing still. The President of the United States announced on September 23, 1949, "We have evidence that within recent weeks an atomic explosion occurred in the U.S.S.R."

From the date of this announcement, we had to discard the complacent and dangerous belief that the threat of atomic attack on the United States was merely something to worry about in the future.

Soviet Russia's atomic energy program is of large dimensions and is given first priority by its government. In addition, the Soviets are under a strategic compulsion to close the gap between their atomic capability and that of the western democratic world. From this and other evidence, it is likely that Soviet Russia has a number of atomic bombs now, and that in the future her stockpile will increase rapidly. Just as we in this country are improving our bombs and increasing their number, so also is Soviet Russia improving her relative capability.

The first atomic bomb dropped on Hiroshima caused a total of about 120,000 casualties. Thus, one atomic bomb—and a crude, imperfect one at that—caused more casualties than the United States suffered in battle in the first year of World War II.

The atomic bomb, in addition to killing people, is also highly destructive to plants and facilities within the radius of its blast and heat effects. Concentrations of industrial workers and facilities are logical targets for A-bombs, targets that pay rich dividends to an attacker.

A startling comparison may be made between the World War II bombing attacks on Germany and the potential of atomic bombs. During the entire course of World War II, the Royal Air Force and the United States Army Air Force dropped on Germany bombs roughly equivalent to 1,500,000 tons of TNT. These 1,500,000 tons had the final effect of crippling the capacity of Germany to wage war, at the same time that the Allied armies were invading Germany by land. Since one Nagasaki A-bomb is the equivalent of thousands of tons of TNT, it can readily be seen that 100 Nagasaki-type bombs have more explosive potential than all the U.S. and British bombs dropped on Germany in World War II.

CAN OUR CITIES BE BOMBED?

Such a comparison emphasizes the serious nature of the threat posed by the possibility of atomic bombs being dropped on American cities. But the atomic bomb, whether of the Nagasaki-type or an improved and more efficient model, has its limitations. An atomic bomb dropped on a target can only destroy the people and facilities within the lethal radius of its destructive effect. Neither the Nagasaki bomb nor a more powerful modern model would destroy an industrial plant several miles from the point of explosion. Industrial plants, separated by space, can survive attack and continue to produce with their people and their facilities intact.

The cities of the United States, with their concentrated populations and densely packed industrial plants, offer an inviting target to atomic attack. Most of these cities are located on or near large bodies of water. Their land-water contrast offers easily found and clearly identified targets to bombers using radar techniques.

The range of modern aircraft and the use of aerial refueling tcehniques make it apparent that from a technical point of view Soviet bombers could reach targets *at any point within the United States* from bases now in the possession of Russia.

Air Force authorities have made the following public assessment of defense against aerial atomic attack in strength on the United States: our air defenses can be expected to destroy no more than 30 per cent of the enemy planes before bombing missions are completed, and preparations today are not yet strong enough to achieve that figure. Even if we had many more interceptor planes and antiaircraft guns and a radar screen that blanketed all approaches to our boundaries, a predictable 70 per cent of the enemy's planes would penetrate our defenses. The offense always has had a crushing advantage in aerial warfare and there is no prospect that the balance will change in the foreseeable future.

Therefore, in deciding on the location of new and expanding industry, we must remember that the threat is now grave—and grows with the passage of time.

INDUSTRIAL DISPERSION AS A NATIONAL POLICY . . .

To survive and win in case of atomic attack, American industry must be able to maintain production of essential goods and services.

Greater security during atomic attack is the object of dispersion of new or expanding industries.

As the tempo of industrial expansion speeds up, so can the security of the American industrial machine be increased.

Industrial dispersion means locating

facilities several miles apart. This creates many small targets—not just one *big target*. This will increase the odds for *continued productive operation* of essential facilities in face of the most devastating atomic attack. Therefore, industrial dispersion, in itself, is a *defense measure* in that any action which decreases vulnerability of targets increases security.

Industrial dispersion is more than a defense measure. It is also an investment in the future welfare and progress of the Nation. It offers the added advantage of long-term economic and social benefits beyond its *defense security contributions.*

These benefits are:

A. Better working and living conditions for our industrial workers.

B. Greater production efficiency through reduction of urban congestion. Experience already has shown that congestion takes its toll of lives and capacity—both in peace and war.

C. A healthier, more stable national economy, an essential to continued growth of private enterprise.

The program for industrial dispersion outlined in the foreword offers a policy in accord with which the initiative of private enterprise and local government can carry out industrial dispersion to the advantage of the people, the Government, and industry.

1. *The program is designed to disperse new and expanding industry—not to move established industry*

A dispersal trend in production centers has been apparent for a number of years. This has not been an upheaval of whole populations, factories, and economies, but a gradual growth from and around metropolitan centers. Industrial dispersion for national security is a speed-up of this natural process by deploying new and expanding industries.

This dispersion program does not call for moving of established industry from one section of the country to another. Nor does this program discourage voluntary relocation to any section if desired by individual companies.

Industry has concentrated its production in areas where raw materials, labor, housing, transportation, and access to markets were adequate for economical and efficient operation. These location factors cannot be ignored.

The Nation's industrial strength for defense, however, is being expanded. With the increasing destructiveness of atomic weapons, industrial dispersion can provide improved security for new industrial capacity.

Newly created industries or expansion of established industries offer the best opportunity to carry out orderly industrial dispersion within a local marketing area.

2. *No region of the country is to be built up at the expense of another*

All areas of the Nation, working together in the common objective to build superior industrial production, make the Nation strong.

Each region and section of the country is making its particular, essential contribution to the total strength of the Nation.

An industrial dispersion policy that would weaken any single region or section would weaken our over-all strength.

It is the policy of the National Government to disperse defense production as widely as possible. No section of the Nation should be weakened. All should be strengthened and expanded.

3. *Industrial dispersion can be carried out if such deployment is confined to each local marketing area*

Every large industrial or metropolitan center in the United States has experienced some industrial dispersion in its marketing area.

By natural economic growth, new industries have been moving into tributary or marketing areas adjacent to the congested centers.

Following this lead of a natural industrial development, national defense policy calls for dispersion to be carried out by cities or metropolitan districts and within their own marketing areas.

This type of industrial dispersion will add to the national security. By confining such deployment to the marketing areas of each city or metropolitan district—but well outside the congested portions of such centers—the prosperity and development of each city and region will be enhanced.

This program offers opportunity for local initiative to do the job. Already certain cities in the United States have taken the leadership in this movement.

The dispersion of industry will progress more rapidly and more effectively if done simultaneously and concurrently by all major production centers than could possibly be done by any Federal agency.

4. *State and local governments, in cooperation with private enterprise, are called upon to take the initiative in this defense objective. The Federal Government will provide encouragement and technical guidance*

American industry has become great through local and individual initiative. The problem of industrial dispersion of war-supporting industries can best be met by local groups with the cooperation of local government.

Planning commissions, labor, civic and business organizations such as chambers of commerce, know at first hand the problems of their particular localities.

Their members know the intricacies of their local economy. They are well acquainted with the topography, raw material sources, labor supply, and various other pertinent local factors to be considered.

With this background, they can coordinate the incentives and other assistance factors the Federal Government offers to do a practical dispersion job. This means the job will be done economically, efficiently, and in the best interests of each production center, the industries involved, and the Nation's security.

The industrial dispersion "pilot operation" upon which the recommendations contained in this report are based was conducted in Seattle, Wash., by an Industrial Dispersion Task Force representing the Seattle Chamber of Commerce and the City and County Planning Commissions. This committee, under the chairmanship of Ethan Allen Peyser, included representatives of industry, labor, and local government.

That is why the Federal Government recommends that these local groups initiate industrial dispersion in their areas. They are better able to take full advantage of the guidance, encouragement, and technical assistance offered by the National Government.

RECOMMENDED PROCEDURE FOR LOCAL INDUSTRIAL DEPLOYMENT

It is recommended that industrial regions and metropolitan areas assume the leadership for industrial dispersion in their respective areas. Based upon the actual experience of one production center which has already launched such a program, the following suggestions are made as to how you can help initiate and activate an industrial dispersion program for your marketing area.

1. *Organize a task force*

Through your leading civic association, you can organize a representative committee or "Task Force." Choose leaders from all communities in your area. Select representatives of industry and labor, the professions, and government—men who are public-spirited, realistic, experienced in dealing with problems affecting all groups and interests.

Your Task Force should include: industrialists, labor leaders, planning commissioners and engineers, utility and transportation specialists, trade and commercial organization executives, educators, local government officials, and those experienced in the problems of real property and finance.

2. *Train your organization*

Your Task Force should then meet to consider the problem and to organize. This is an extremely important step as complete understanding of the over-all problem is essential to success.

The picture of the real and present danger which exists should be drawn very clearly at this first meeting. No exaggeration is needed, just a sober outline of what our military leaders have said repeatedly: That the enemy *does* possess the atomic secret, the means to deliver the atomic bomb, and the ability to penetrate our most determined defense.

3. *Work closely with government and public service agencies*

At the outset, liaison should be established and closely maintained with all national, regional, and State agencies concerned with defense mobilization and industrial and community development. This can best be done through your regional and State Defense Mobilization Committees and State and regional planning and development associations. These groups hold the key to a well-coordinated and successful program.

4. *Organize your working committees*

Committees may then be formed as illustrated in this section. In activating these committees, the following procedure has been found to be effective:

FIND THE BASIC FACTS

The fact-finding committee gathers basic information required to determine the location and extent of concentrations of vital industry or of population which an enemy strategist might decide possess target value.

This study will show how far from the target area industrial sites for new and expanded industries should be located—the distance, of course, depending to a great extent upon the topography of the area.

SELECT SUITABLE SITES

Your site selection committee can then swing into action by choosing suitable sites outside the designated target area.

In order to do this effectively it will require the aid of planning commissions and other civic groups in the outlying communities. All the standard industrial location factors must be carefully considered in selecting these potential industrial sites, particularly such factors as: manpower, housing, transportation, and utilities.

Use of material on the following pages will prove helpful in carrying out this step of the operation. The check-off lists, for example, will assist you in preparing your own lists for site selection and carrying out a dispersion operation.

STUDY THE LAWS

Meanwhile your legal committee studies the laws which pertain to the development of industrial sites and makes recommendations as to what local or State legislation, if any, is needed to put this plan into operation.

PREPARE YOUR DISPERSION REPORT

The publication committee is then called upon to prepare an illustrated report which, through the use of maps, charts, pictures, and overlays, graphically presents the information that an industrialist needs in seeking a location for a new or expanded plant in your area.

This report is submitted to the sponsoring agency and your city and county government for approval.

TELL THE PUBLIC ALL ABOUT IT

When the dispersion report is approved, you are ready to launch the actual deployment operation.

Your publicity committee is now called upon to make its contribution.

Meetings should be held in all communities affected, the plan explained to them in detail, and their support enlisted.

The existence of the plan should be publicized as widely as possible. Speakers should appear before such organizations as labor unions, service clubs, civic improvement clubs, and educational groups.

Through meetings and conferences, industry should be thoroughly acquainted with the necessity for, and the benefits to be derived from, such a vital defense program.

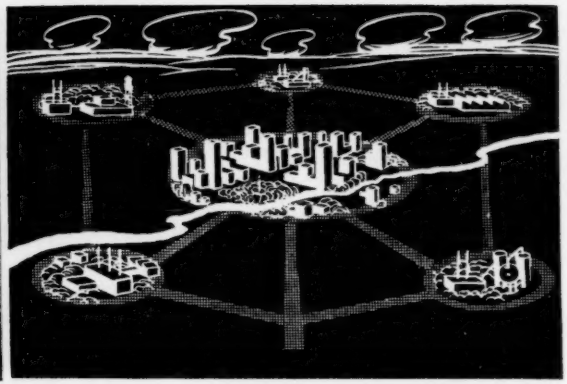
To assure success of your program, it is also very important that all individuals who make daily contacts with prospects for industrial sites be thoroughly acquainted with and cooperate in your approved local dispersion plan.

In activating your program, it is highly essential to consider the incentives offered by the National Government to aid and encourage industry in dispersing its new and expanded facilities.

It is recognized that the primary responsibility for industrial dispersion is in the hands of local government and private enterprise. The Federal

TREND
HISTORICAL

TREND
POTENTIAL



Government, however, recognizes its responsibility and interest in achieving industrial dispersion as a vital factor in national defense.

Therefore, the National Government will make available guidance and technical assistance for this purpose. The Department of Commerce, through its field offices and Area Development Division, stands ready to advise with State and local groups during the initial stages of this undertaking.

In addition, the Federal Government will take the following measures:

(*a*) To the greatest extent practicable, certificates of necessity, allocations of critical materials for construction purposes and emergency loans growing out of defense production will be confined to facilities which meet satisfactory standards of dispersion.

(*b*) Primary consideration to dispersion factors will be given in locating facilities built by the Federal Government.

(*c*) Defense contracts will be awarded, and planning, under Department of Defense production allocation programs, will be conducted in such a manner as to make maximum use of facilities located in dispersed sites.

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LOCAL INDUSTRIAL DEPLOYMENT CALLS FOR LOCATION AND DEVELOPMENT STANDARDS

1. *For security*
2. *For economical and efficient production*
3. *For sustained community benefits*

There are important factors to consider when selecting and developing deployed industrial sites in each marketing area.

The handy cow pasture on the edge of town may look like a good site, but does it measure up to the all-important security standards? Is it strategically located in relation to labor supply, fuel, transportation, and other requirements for efficient and economical production? Is the site properly located in relation to future homes, shops, schools, and other community developments? Has full consideration been given to insuring its proper development and that of the surrounding community for efficient wartime production and long-term benefits to industry and community?

When you have answered these questions, you are on the way to developing a sound industrial dispersion program.

SITE SELECTION—FOR SECURITY . . .

Your site selection committee, with the cooperation of local planning agencies, can find the answers to these questions with the help of the following check-off lists:

In selecting dispersed areas for development of industrial sites, security is the first and most vital consideration. Based on present and anticipated military weapons, the following security standards should be considered:

1. These industrial areas should be 10 to 20 miles from any densely populated or highly industrialized section of an urban area. However, this dispersal distance may be less when additional protection is provided by rugged topography or protective construction;

2. Industrial development areas should be 10 to 20 miles from such prime targets as major military installations;

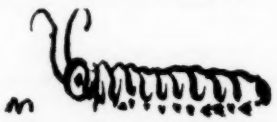
3. Industrial development areas should be located a sufficient distance from one another so as to avoid clusters creating new targets;

4. Industrial development areas should be limited in size to avoid any concentrations which would create new targets. Consideration should be given to the size of both the industrial development sites and the communities that will result;

5. Sites, desirably, should be served by more than one transportation facility in order to insure continued production and distribution;

6. Sites, desirably, should be located on power and other utility grids, so as to permit alternate sources;

7. Other standards based on local conditions should be considered.



SITE SELECTION—FOR ECONOMICAL AND EFFICIENT PRODUCTION . . .

Having analyzed possible sites from the point of view of security from enemy attack, it is essential to see that each site will meet the standard requirements for economical and efficient industrial operation, both during and after war.

Most communities have already surveyed and assembled information on their basic industrial location factors—such as general market, labor, materials, and community advantages. This is the first thing a manufacturer wants to know, and is thus the community's first job. Having decided on the general area for his plant location, the second thing a manufacturer wants to know is information about specific plant sites in the area.

Here is a checklist of the kind of information that a community should have about its area and the available sites for its security program:

MARKETS—
- Extent of trade area
- Quality
  - Institutional and industrial purchasers
  - Population, age, sex, occupation, purchasing power

LABOR—
- Supply, skills, wage rates

PRODUCTION MATERIALS—
- Raw
- Semiprocessed
- Finished products

TRANSPORTATION—
- Kinds by rates and quality of service
- Warehousing and distribution

POWER AND FUELS—
- Kinds by volume, quality, cost

WATER—
- Sources by quantity, quality, cost

CLIMATE—

LAWS, TAX STRUCTURE—

LIVING CONDITIONS—
- Housing, recreation, institutions, services

SITE CONDITIONS—
- Acreage
- Foundations—soil, topography
- Drainage—other conditioning costs
- Proximity to—
  - Labor, housing, transportation, public utilities, related factories
- Buildings, fire protection, industrial zoning
- Pollution problems and waste disposal
- Number of ownerships in site
- Cost per acre (or assessed value)

SITE DEVELOPMENT—FOR SUSTAINED COMMUNITY BENEFITS

Tools to guide the proper development of industrial sites and surrounding community are available from local governments and their agencies. The following checklist should be used in determining the availability of these tools and techniques:

1. ***Check local zoning laws to see that they provide adequate:***

Zoning use map based on comprehensive land-use plan.

Protection for industrial expansion.

Protection for residential areas.

Standards for space, light, and air between all types of buildings.

Control of density of population growth to avoid congested development of land, traffic congestion, overloading of utilities.

Buffer zones between incompatible types of land uses to avoid depreciation of values, blighting of newly constructed areas.

Provision for preserving open space between satellite towns. (This space could be used for agriculture, forestry, recreation, and flood control.)

2. ***Check local platting laws to see that they are modern and provide:***

Street and highway layout conforming to a major street plan.

Prohibition of use for subdivision purposes of land unsuitable for such development.

For dedication of property for educational, recreational, and other community uses.

Requirements for improvements such as street surfacing, walks, curbs, water, sewer.

Minimum lot area and frontage requirements.

Limitations on permitted street grades.

For adequate easements.

3. ***Check with local planning authorities to see that they have comprehensive plans under way for guiding the development of the city and region. That they have coordinated plans for:***

General land utilization—industry, commerce, residence, and public.

Self-contained neighborhoods and communities, with planned locations for such facilities as schools, hospitals, playgrounds, parks, and shopping centers.

Major and secondary highways and parking terminals.

Rail, water, air, and trucking transportation.

4. ***See that comprehensive plans are realistically based on such studies as:***

Existing and future land uses, soils, topography, potential flood areas, drainage conditions.

Population trends, characteristics and desirable densities.

Natural resources.

Existing transportation, highway, and utility grids.

Housing conditions, land values, and rental trends.

FEDERAL DISPERSION POLICY STRESSES LOCAL INITIATIVE

JACK GORRIE

In an article written especially for this issue, Mr. Gorrie, Acting Chairman of the NSRB, surveys the background of thinking which went into the "Seattle Program," which served as a basis for the new national dispersal policy.

PRESIDENT TRUMAN'S recent statement calling for the dispersal of new defense plants is the outgrowth of extensive studies of means to protect this country's industrial production against enemy attack and of a pilot study carried out by the people of the Seattle area to explore methods of integrating the dispersal of manufacturing facilities with the sound development of a typical American industrial community.

These studies bear out the conclusion often stated in the pages of the *Bulletin* that dispersal of industrial facilities is one of the most effective measures this country can adopt to assure continuity of vital production in the event of war.

But the studies go further and indicate that the dispersal of new facilities can be carried on at this time with effective results and without disrupting the country's vital production of defense materials or the economy and operating efficiency of its established industrial areas.

EMPHASIS ON LOCAL DISPERSION

However, these features should be noted:

1. It will apply only to new plant construction; it does not contemplate the uprooting and relocation of plants which are already well established and operating efficiently.

2. It will apply to all sections of the country equally; it does not propose building up one section at the expense of another.

3. It emphasizes dispersion within local marketing areas, on the assumption that a plant located 10 to 20 miles (or less, on rugged terrain) from a concentrated industrial center is as safe as one located 200 or 2,000 miles away.

4. It places chief reliance on private industry and on the states and local communities to see that dispersal within their areas is carried out properly.

The last two points are perhaps the most significant. This program is not one of moving essential industries from their traditional locations to parts of the country that, presumably, are safer from attack. Actually, a determined enemy can reach any part of the United States. The object of this program is to avoid creation of any new concentrations of industry anywhere in the country which are large enough to form attractive targets for intercontinental bombing. This can be done as well by the careful spacing of new plants within an established industrial region as by moving them to a less-industrialized part of the country.

AN EXPANDED CITY —BUT STILL SEATTLE

More than a dozen potential industrial areas were surveyed and listed, each having the characteristics needed for the establishment of new manufacturing operations. All were well outside the territory that might be affected by any possible bombing of the central Seattle area. And their development would make unnecessary any further expansion of the area, thus making the Seattle industrial region as a whole a far less attractive target.

At the same time, the dispersed industries and all of the activities associated with them would be part of the greater Seattle economic complex. Their financing would be handled through the same channels as though they were located in the central city. Shipping would be handled by the same railway, steamship, and trucking lines. Labor would be drawn from the same labor market, expanded by the inclusion of a number of outlying suburban communities. Payrolls would continue to be spent in the Seattle area, strengthening retail trade in the outlying suburbs and also flowing into the central city through the normal processes by which an active city serves its region.

What interested Seattle people most was that their survey put them in a position of readiness for industrial expansion to take care of mobilization requirements. If one of their established industries, now somewhat cramped for space, should need to double or triple its floor area, it would not have to move away from Seattle to do it. It could find ample space for a supplemental plant within easy driving distance of the home office. The same top management could supervise both plants, experienced personnel could shift over temporarily or permanently to help get the new plant going and Seattle, not a competing city, would reap the benefit of the expanded activity.

The same readiness would help attract other plants too, perhaps producers of new products looking for an ample site well separated from likely target areas or new service firms or suppliers set up by Seattle businessmen to help meet the mounting requirements of the region.

NOT A THREAT TO ECONOMY

The conclusion reached by the business and governmental leaders of the Seattle area was that industrial dispersion carried out on a local basis would hold no threat to their economy, but, on the contrary, would provide an opportunity for great expansion and improvement of it. Dispersion offered a way for the area not only to grow industrially without increasing the risk of enemy attack, but, at the same time, to improve economically and socially, solving the age-old problem of mounting in-town congestion and satisfying the American urge for more spacious and more attractive home surroundings.

The Seattle metropolitan area is perhaps a simpler region geographically and in terms of governmental organization than many of the other great metropolitan areas of the country. Certainly it is a far cry from the New York region which reaches into three states and includes dozens of independent and vigorous cities besides the central one. But the general principles worked out at Seattle are applicable to other metropolitan areas, and an effective program of industrial dispersion can be carried out within them if their citizens so wish.

The reasons for dispersal have been stated often and well in the pages of this journal. It is sufficient to say that they become more compelling with the passing of each day. Possession of the atomic secret by a potential enemy is no longer an uncertain future possibility, as it was when the *Bulletin* first began discussing dispersal. It is now a hard fact which cannot be evaded.

We are told by our military authori-

ties that as much as 70 per cent of any attacking force sent against us probably can penetrate our defenses. We know from our own tests that each atomic bomb that reaches its target will do a fabulous amount of damage. Whether that damage can be severe enough to cripple our industrial capacity depends as much on the targets we offer to the enemy as on his striking power.

If we concentrate our vital plants in a limited number of target areas, we make the enemy's job easier. If we scatter them enough we make it difficult. The end purpose of industrial dispersion, therefore, is so to increase the difficulty of an effective strike on the United States that it could not possibly achieve its purpose and hence would not be attempted.

The question may well be asked whether it is not too late to inaugurate a dispersal program for new defense industries. Is the manufacturing pattern of the United States so well set that it cannot be materially changed by the location of new plants? Has such a high degree of industrial concentration been established in the past that we will remain vulnerable to atomic attack no matter what may be done about new construction from now on?

The answers to these questions might be affirmative if the dispersal of American industry were starting from scratch, but it is not. Actually, dispersal has been going on for many years, motivated by a variety of economic and social causes. While some concentrated industrial areas have been increased in size and importance during the past ten or fifteen years, hundreds of vital factories have been built in suburban areas and in the open country well dispersed from the older centers.

The purpose of the new governmental program is to see that that trend is encouraged wherever defense production is involved. The actual choice of industrial location will be left to private industry and to the localities which it chooses as the most advantageous from its standpoint. However, any industrialist who chooses a new defense plant site in or too close to an existing concentration will have to present a strong justification for his choice before he can expect assistance from the government in the form of contracts, loans, certificates of necessity, or allocations of scarce material.

That is plain common sense as long as our national existence stands threatened by a powerful enemy.

FEDERAL ACTION TOWARD A NATIONAL DISPERSAL POLICY

WILLIAM L. C. WHEATON

The new federal dispersal orders have done much to start a true dispersal program in the U.S., in the belief of W. L. C. Wheaton, Chairman of Harvard University's Department of Regional Planning. Mr. Wheaton has been advisor to many federal and state agencies as well as to municipalities. During the recent war he was Special Assistant with the Housing and Home Finance Agency.

TWO decisive steps taken by the federal government in August 1951, have given the nation much of the authority needed to execute a national program of decentralization for defense. On August 11, 1951, the President issued an Executive Order requiring that federal financial or priority assistance for new industrial plants be conditioned upon their location in invulnerable or dispersed sites. Less than a week later the House of Representatives passed the comprehensive defense housing and community facilities bill (S. 349) already approved by the Senate.

The powers conferred by these two actions are essential elements in a comprehensive dispersal program. They equip the responsible federal agencies with most of the authority needed to carry out a national policy of decentralization. Such a policy has been long overdue. It has not yet been adopted, and is not being developed at this time. The steps now under way are urgently needed. But they are not yet adequate to achieve the peacetime economic health or the wartime national security now required.

INDUSTRIAL DISPERSAL NOT ADEQUATE

A program for the dispersal of new *industrial construction* alone is not adequate to meet the nation's needs for security against atomic attack. *Housing and community facilities* must also be built to serve decentralized industries. A sound dispersal program will therefore require the construction of whole communities. It will also require steps to assure that such communities be built and remain safely separated from surrounding urban areas. Further, it will require steps to channel the continuing growth of our metropolitan areas into similarly separated satellite communities. Finally, it will require steps to reduce excessive population densities and congestion within urban centers and to prevent their recurrence.

EXPERIENCE DURING WORLD WAR II

The question of decentralization did not arise during World War II. Most of the plants built during that war were extensions of existing peacetime facilities or were built in or near established existing communities. Such locations were chosen primarily because of the availability of a labor supply, housing, community facilities, and a desired proximity to other industries. The threat of aerial attack was so remote that positive efforts to decentralize industry did not seem to be justified. Nevertheless, many plants were built in isolated places, either because the need for large sites or because the availability of raw materials or power supply was a determining factor.

In spite of the fact that dispersal was not of direct concern during World War II, the country developed and used many of the powers and procedures which would be essential to carry out an effective program of industrial dispersal. These include finan-

cial aids for new industrial construction, particularly accelerated tax amortization, government loans for plant construction, and direct government construction of industrial facilities. Second, the government was compelled to provide nearly a million new housing units for workers in war production. Private housing was built with government mortgage insurance; public housing was built either directly by the federal government or through financial assistance to local public agencies. Third, during World War II the government also provided community facilities such as water and sewage plants, schools, and roads where they were needed for war production. These facilities were made available through direct federal construction or grants or loans to state and local agencies.

World War II also involved the construction of a number of communities of city or town size. Oak Ridge was the most dramatic of these, with its wartime peak population of over 50,000 people. Other communities, such as Vanport, Oregon, and many of the larger war housing projects approached the size of many substantial cities. These actions were necessary in spite of the fact that most new plants were built in existing communities. To the extent that dispersal is effective, even more extensive action may be needed in the future. Nevertheless, this World War II experience provides a foundation for the kinds of action which will be needed to carry out a more systematic program of industrial dispersal.

World War II also demonstrated the need for controls upon excessive congestion in existing urban centers. A number of war production centers such as Detroit and Norfolk became so glutted with high priority war work that efforts had to be undertaken to spread war orders and new plant construction into other communities which had been less violently affected by the wartime economy. During 1943 and 1944, particularly, it became apparent that cities like Detroit could handle additional war contracts only by transferring workers or plant facilities from one high priority war job to another or by bringing workers from other areas to a community already overcrowded and strained to the utmost at every point.

To relieve this situation an administrative monstrosity, the Congested Production Area Urgency Committee, was created. These committees were established to screen orders and construction programs, establish priorities for those which could be permitted in the congested areas, and to channel other work elsewhere. It must be obvious that a community which has such a high concentration of war work would become a top priority target for enemy attack. The experience of World War II in this respect suggests the urgent need for preventive action lest a recurrence of the congested production areas problem arises. The administrative experience of the committees further suggests that committees without power and representing a variety of federal and local agencies are ill adapted to the administration of an effective decentralization program.

A COMPREHENSIVE DISPERSAL PROGRAM

Any national program of dispersal will require legislative authority and administering agencies to carry out seven vital functions. Most of these powers are in existence today. Many were used during World War II. The few remaining needed powers may prove to be difficult hurdles for a dispersal program. Similarly, administrative agencies exist which are staffed and experienced in many of the necessary functions, although grave problems would arise in coordinating the activities of these agencies in pursuance of a dispersal program.

The first of these essentials is a comprehensive dispersal policy and the administrative means to coordinate the operations of several federal agencies in the execution of such a policy. A national decentralization policy is now lacking. Presumably it should include at least the following elements:

First, that most new industrial plants, and all large ones, should be located outside the built-up area of any of the larger metropolitan districts and at a safe distance from other vital military or industrial installations;

Second, that housing and community facilities for new plants be planned in conjunction with the plant and be similarly located so as to assure that workers in such plants are housed outside prime target centers;

Third, that continuing controls be exercised to assure that dispersed industrial centers, while allowed to expand, do not accumulate sufficient target-worthy installations so that they themselves become high priority targets;

Fourth, that new construction and urban redevelopment in existing major metropolitan areas be utilized to reduce congestion and excessive concentrations of industry or population, and to channel new growth into sub-communities separated by open countryside from other sub-communities and the central city;

Fifth, that in the planning of new communities and the replanning of existing communities, each sub-area be as nearly self-contained as possible, so as to minimize the disruptive effects of attack upon any part of the urban complex, and that alternative sources of power and fuel and alternative means of communication and transportation between areas be provided.

CO-ORDINATION OF FEDERAL AGENCIES NEEDED

Clearly the execution of any such policy would require the coordination of a half dozen federal agencies and the participation of state and local governments in each metropolitan area. Under existing powers the Office of Defense Mobilization, the Munitions Board, and the Departments of the Army, Navy, and Air Force control and influence industrial location. The Housing and Home Finance Agency deals with housing, community facilities, and urban redevelopment. The Department of Commerce and the Department of the Interior are concerned with industrial expansion, critical deficiencies in output, power, transportation, and highways. The Federal Security Agency is concerned with schools and hospitals. Their activities must be coordinated with those of the Housing Agency and of the Office of Defense Mobilization to secure effective and orderly dispersal.

This complex of federal powers must be coordinated with programs of state and local government. State and local services are essential in any community-building undertaking and particularly in a decentralization or dispersal program. Philadelphia must accept the fact that it is not in the national interest for additional critical plants to be built within its boundaries; Philadelphia and Pennsylvania must jointly agree upon the changes in population, housing, community services, employment, transportation, and the like that will result from the channeling of industrial growth into some community on the outskirts of Philadelphia; and they jointly with the federal government must provide the assistance needed to plan and guide

the growth of the new communities.

At the present time there is no single federal agency equipped to carry out this coordinative function. We have no national department of Urban Affairs, although the Housing and Home Finance Agency contains many functions which such a department would require. Pending the establishment of such a department, coordination by some central staff agency such as the National Security Resources Board appears to be required.

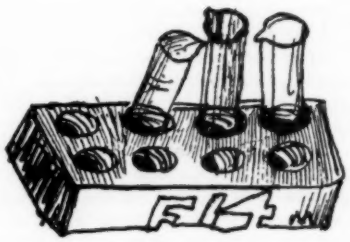
LOCATION OF NEW INDUSTRIAL PLANTS

The second essential power is control over the location of new industrial plants. In time of peace such control would be politically impossible. However, most new industrial construction must receive either accelerated tax amortization assistance from the federal government, direct loans from the government, guarantees of privately made loans, construction priorities, or commitments for purchase by the government of the plant's product. Since this is the case, the location of plants is subject to a considerable degree of influence by government, and if necessary, outright control. The recent Presidential order on dispersal contemplates that government loans, tax concessions, and priority powers shall be granted only for plant construction in dispersed locations.

The use of these control powers with respect to industrial location must necessarily be somewhat negative. The federal government as yet can use these powers only to prevent the location of new plants in vulnerable sites; it evidently has no standards or criteria or organized agencies which could be used to guide location in an affirmative sense.

Industrial dispersal cannot be undertaken arbitrarily and without careful consideration of its potential effects upon the civilian economy. If we put plants in locations which are inefficient or uneconomic, we will reduce our strength and impair our productivity, however safe such locations may be from atomic attack. Manufacturers or workers will not locate in places having no permanent peacetime future without payment of prohibitively expensive subsidies. Military dispersal must coincide with the economic and social requirements of civilian decentralization if it is to increase our long-range strength, productivity, and security.

For these reasons a purely negative federal policy might be advantageous. State and local governments might then develop industrial sub-centers, satellite communities which met standards of military security. If sufficient local action along these lines could be stimulated, manufacturers would be in a position to choose from among several alternatives the dispersal location which most nearly met their particular requirements. In this area, then, federal standards and local action would be preferable to a federal control for which we are unprepared.



CONSTRUCTION OF DEFENSE HOUSING

The third essential for a dispersal program is authority to assure the construction of housing needed for dispersed industrial plants. These government powers already exist in the Housing and Home Finance Agency. Through various forms of direct loans, mortgage guarantees, mortgage insurance, and annual subsidies, the government even in peacetime assisted half or more of the total volume of new residential construction. Since most of these houses are already inspected or approved by federal agencies prior to or during construction, minor changes in the administrative procedures of the agencies involved could readily introduce vulnerability as a criterion in the location of houses receiving such aids.

In addition, during World War II, the Housing and Home Finance Agency developed the procedure of programming public and private housing to meet the needs of specific war plants. This machinery has been reestablished in part during the last six months and can readily be expanded to program housing for dispersed industrial centers. The programming process serves as a guide to the federal agencies which are providing housing through government assistance programs, whether the housing is built for government agencies or private ownership. Additional powers needed for defense housing are included in S. 349 which will be finally adopted in the near future.

PROVISION OF COMMUNITY FACILITIES

The fourth essential in any program of dispersal is authority to provide essential community facilities. Traditionally such facilities are provided by private investors in the form of stores or by local public agencies in the form of schools, streets, sewage, water, and the like. Where rapid increases in local population have arisen as a result of defense activities or defense plant construction, the government has provided emergency aid to local agencies for such facilities. The Community Facilities Bureau now in the Housing and Home Finance Agency administered these programs during World War II. A renewal of its authority is provided in the pending defense housing bill. The administering agency is fully experienced in planning and executing aid programs of the type needed.

Other community facility aids are provided in part by the Federal Security Agency (schools and hospitals) and the Department of Commerce (urban highways). Coordination of these programs would be required. In addition, state grants-in-aid are available in many jurisdictions for some of the most essential services.

ACQUSITION OF SITES FOR DEFENSE COMMUNITIES

The fifth essential for a dispersal program is authority to plan and acquire sites for dispersed defense communities. Neither private investors nor state or local governments now have such authority. These powers would include authority to acquire by condemnation large tracts of land, several thousand acres in size if necessary, to plan such sites, and to sell them for industrial, residential, commercial, and community purposes.

It is widely recognized that scattered ownership of land is a major obstacle to planned city growth. A majority of the states have enacted legislation to allow public agencies to assemble sites in slum areas to permit planned rebuilding. The principle has not been applied to suburban or rural

land, even though the need is equally apparent. Without site acquisition power any dispersal program will founder, and the maintenance of protective space between communities would be virtually impossible. Continuing public ownership of land is not required; the land can be returned to private ownership during the development period.

This type of authority is granted in a limited way to the Housing Agency by one title of the new defense housing bill. These powers must be exercised by the federal government during the present emergency. There is no reason why they should not be exercised by state and local agencies, pursuant to state enabling legislation, and, indeed, such action would be preferable if it could be obtained. In all probability the federal government will have to lead the way, and state and local governments may be expected to extend existing urban redevelopment legislation in the future.

Many of our existing smaller towns on the outskirts of existing metropolitan areas can be expanded to accommodate dispersed plants. But many such communities will resist plant location within their borders either because they prefer to remain primarily residential in character or because they recognize that industrial expansion will produce an influx of middle and lower paid workers which will create housing problems, school financing problems, and other difficulties which smaller communities now widely recognize to be painful and costly. In spite of these difficulties, much of the new growth resulting from a dispersal program will and should go into existing satellite or smaller independent communities. Most of the program will face problems, including site acquisition, not essentially different from those involved in building whole new communities.

LOCAL GOVERNMENT FUNCTIONS

The sixth essential for a dispersal program is authority to reconstitute the boundaries of local government areas or to establish new state or metropolitan agencies to undertake metropolitan planning and financing functions, for which there already exists a recognized need. Just as it is inconceivable that a civilian defense program could be carried on alone by each of the scores of municipalities that comprise any metropolitan area, so it is inconceivable that a systematic program of dispersal can be conducted by either a central city or by its suburbs acting alone. Metropolitan planning is urgently needed and on a scale which has never existed in this country.

Most of our recent industrial growth has occurred in the environs of our metropolitan areas. Security from atomic attack requires that such further expansion take place in an organized way, in a way which will minimize the dependence of the industrial satellite upon the vulnerable center, in a way which will minimize the need for extensive commuting by workers, and in a way that will prevent the eventual filling up of the spaces between satellites by uncontrolled urban growth. Federal action cannot accomplish these objectives. Only a rapid expansion and a considerable technical improvement in state, local, and metropolitan planning procedures and agencies can meet this need. In the meantime, vigorous and decisive federal leadership is required.

Rapid urban growth in any form and suburban growth in particular also require financial aid to the growing local area. At present these needs are met in part by state and federal grants-in-aid for schools, highways, and other public improvements. A more equitable distribution of their burden throughout the metropolitan area is clearly indicated. Extensions of present grant-in-aid programs or new taxing jurisdictions for metropolitan functions are therefore indicated if the existing rate of decentralization is to be accelerated and extended.

At least one city in the United States appears to have recognized these problems and taken steps toward their solution. That city is Milwaukee, Wisconsin. For several years Milwaukee officials have been studying the need for the development of a satellite to Milwaukee into which its future industrial and residential growth can be channelled. Thus far the city has been balked in its efforts to acquire jurisidiction over the site or to obtain authority necessary to acquire a site outside of its boundaries. The proposed Milwaukee satellite city, the most farsighted planning action by a municipality in this country, is based chiefly upon the peacetime needs of that community. It is regarded as a solution to the problems of overcrowding, lack of industrial space, lack of residential space, traffic congestion, and financial difficulties faced by that community in the process of its normal growth. This need for a satellite is given additional emphasis by considerations of national security. With the federal help outlined above and with appropriate state support, Milwaukee might well move toward the solution of its own problems and those of the nation. If one major community in the country has recognized this need, others may be expected to follow, for they are confronted with identical problems.

REDUCING CENTRAL CONGESTION

The seventh essential for a program of defense dispersal is authority to carry on planning programs to reduce the density of overcongested areas and to prevent a recurrence of overcrowding. Fortunately, most of the major cities of the country are already engaged in programs of urban redevelopment and slum clearance with federal assistance. These programs are being carried out by municipal governments with the help of loans and grants authorized by the Housing Act of 1949 and administered by the Housing and Home Finance Agency. As a result of that program, both federal and local agencies now in existence are becoming familiar with the techniques of site acquisition, moving families, demolishing buildings, and redevelopment.

As presently operated, this program not infrequently fails to reduce densities. A major obstacle is local unwillingness to face up to the difficulties of relocating the predominantly lower income families who inhabit overcrowded areas. A second obstacle is the failure of responsible officials, local and federal, to accept the fact that suburban construction must take place to accommodate displaced families before urban clearance can proceed rapidly.

POWERS LARGELY AVAILABLE

In conclusion, administrative machinery exists for many of the functions which would be necessary for a program of national dispersal. Powers of industrial location exist in the defense agencies and may be used under the recent Executive Order to channel new industrial construction into dispersed locations. The federal government has in the Housing and Home Finance Agency a body experienced in the planning and programming of housing, community facilities, and urban redevelopment. The passage of the comprehensive defense housing legislation now awaiting final Congressional action will provide essential authority to acquire and plan sites for defense communities.

The most critical gaps in our administrative machinery for a dispersal program are the lack of coordination between the several federal agencies and the lack of coordination between the federal government and local programs. State and local planning action is also needed. This is a considerable hurdle which we cannot be expected to overcome until the federal agencies have spelled out a program, defined objectives, and provided leadership for the organization of the needed state and local agencies. These goals, objectives, and standards for a dispersal program are now lacking. Research is urgently needed on the means by which dispersal can be accomplished without weakening, and if possible, with a strengthening of the local and metropolitan economies which are the source of our national economic strength. We know enough, however, to start on a program of dispersal which will at least guide the very considerable amount of industrial and residential construction which the defense economy will permit and necessitate.

POLITICAL OBSTACLES

The political obstacles to a program of dispersal are substantial. The officials and, indeed, many of the people of our metropolitan cities will understandably resist policies which will prevent further industrial growth within their borders. Even if the prevention of further concentrations produces a better and more sound environment in the future, it may have adverse effects upon some short-run interests. Since any federal administration is dependent upon the political support of the metropolitan population of the country, dispersal will require unusual political courage and statesmanship.

Congressional attitudes have already been tested in part. The Congress has refused to act on the dispersal of federal offices from Washington. In part this refusal was due to the illogical program offered by the Administration, and in part it was due to the only partially justifiable desires of many Congressmen to have offices decentralized to their own districts. Congress has also rejected a proposal which combined dispersal from metropolitan centers with movement from one region to another. The sponsors of this proposal, representatives of the South and West, quite clearly hoped that dispersal could also be used to effect a more rapid expansion of their regions, a view which was resisted and defeated by representatives of the more industrialized states. Finally, the Congress has expressed vigorous opposition to federal ownership or management of defense communities, such as Oak Ridge, Tennessee. It was this opposition which led the Atomic Energy Commission to virtually abdicate responsibility for housing its employees in the Savannah River and Paducah projects.

On its merits, and separated from unrelated issues, urban dispersal may overcome these political resistances. Decentralization is occurring anyway, and at a rapid rate. Half of the total population increase of the last decade was located on the periphery of our metropolitan areas. This must be a reflection of the deep-seated desire of the American people for a less crowded environment. Coupled with urgent military necessity this constitutes a political force susceptible to mobilization behind the dispersal program.

DISPERSAL IS NECESSARY

The great metropolitan cities of the United States are the source of this country's industrial and military power. They contain more than half of our population and two-thirds of our manufacturing capacity. The abundance of their wealth and productivity in times of peace, however, merely serves to emphasize their vulnerability under the threat of atomic warfare. They are truly the Achilles' heel of American national security.

Some decentralization of these metropolitan communities has long been needed for peacetime purposes. They have become overcrowded, congested, costly, and less efficient places for business and for residence. During the last two decades some decentralization has occurred, and there is evidence that these trends were accelerating in recent years. The dangers of war and the possibility that an enemy attack might cripple substantial parts of our productive capacity make decentralization an urgent necessity. We can no longer regard it as a peacetime amenity, a trend to be welcomed. *Orderly dispersal is imperative to the future security of the nation.*

The task of dispersal is a complex one, affecting the lives of millions of people, their places of work and of residence, their past and future investments, their schools and shops, and their communities. No nation can afford to abandon the cities which comprise most of its accumulated wealth. Today especially we need and must utilize every plant, every house, every road that we have.

On the other hand, we can afford to channel new growth into decentralized patterns. The volume of such growth is prodigious: twenty-five billion dollars last year for new plants and equipment; 1,500,000 new homes, enough for five million people, with roads, water, sewer, schools, stores, and other services to go with them. *This annual increment of new growth, properly guided, could relocate a fifth or a third of our urban population with their factories in each decade.* We have the governmental powers and many of the administrative skills required. Do we have the national determination to achieve such an objective?

News and Notes

DISPERSAL OF WASHINGTON AGENCIES

A bill "To Provide for the Construction of Federal Buildings Outside of, but in the Vicinity of . . . the District of Columbia" (S4232) was introduced in the 81st Congress by Senator Dennis Chavez (D., N.M.), Chairman of the Committee on Public Works.

It was drafted, in pursuance of a request by President Truman, by the General Services Administration. This bill died in committee when the 81st Congress adjourned, but was re-introduced in the 82nd Congress, as S218.

The bill provided for authority to acquire and develop eight sites in Virginia and Maryland, within commuting distance from Washington (20–30 miles), to erect buildings into which agencies or parts of agencies, employing about 40,000 persons (25,000 in the military and 15,000 in civil establishment) could be relocated.

The total number of federal employees in Washington was given as about 200,000 at the time of the hearings, with expectation that it might rise to 270,000 in case of full mobilization; the full potential capacity of the new sites was mentioned as perhaps 80,000 jobs.

Among the key agencies to be relocated were the Atomic Energy Commission (1,000), Coast and Geodetic Survey (1,000), National Production Authority (3,500 jobs, about 50 per cent of the total), Economic Stabilization Agency (about 3,000), Federal Civil Defense Administration (at least 600), Bureau of Mines (300), Geological Survey (1,400), Department of State (about half of the total, 3,500), Bureau of Public Debt, and numerous branches of the Army, Navy, and Air Department.

The cost of the projected development was estimated as 190 million dollar (an earlier plan, contemplating only four sites, was estimated to cost 140 million). This did not include housing for the relocated employees, who were supposed to remain at first in Washington and only gradually establish themselves around the new sites. It was anticipated that even in this way, the critical traffic congestion in Washington would be eased considerably, since the new flow of commuters would move mostly in the direction opposite to the present one. It was also stated that many of the agencies to be relocated were still housed in emergency buildings from World War I or II, which disfigure the capital and obstruct traffic.

Hearings on S4232 were held on Dec. 13, 14, and 18, 1950; on S218, on January 19 and 30, 1951. In these hearings, Senator Arthur V. Watkins of Utah, and other senators from Western states, tried to introduce the question of *decentralization* of Federal government—moving some of its agencies away from the District of Columbia—as a better alternative, or at least as a supplement to dispersing them in the immediate vicinity of the capital. However, government representatives in the hearings refused to become involved in a debate on this type of dispersal. When asked whether dispersal 20 or 30 miles away from the Capitol would be effective if and when the hydrogen bomb becomes a reality, Colonel Ramsay Potts, Jr., representing the NSRB, answered that the hydrogen bomb was "taken into consideration" in devising the plan.

The bill was supported, in the hearings, by the representatives of the Bureau of the Budget, the NSRB, the Defense Department, the General Services Administration, the Federal Civil Defense Administration and other government agencies.

Among the non-governmental witnesses, representatives of city planning groups supported the bill, but argued against the postponement of development of housing and community facilities around the new office building.

Mr. Clarence Stein, Chairman of the Regional Development Council of America, said that acquisition of land for housing and measures preventing future building-over of the open land separating the new sites from the present city and from each other, must be taken up at once if the ultimate aim is to create isolated "new towns" rather than to permit the new office sites to be swallowed by the expanding old city (as has happened in the past to most factories built outside the city limits).

Representatives of counties and communities in Virginia and Maryland —where the projected new office sites were to be located—promised full cooperation, but raised questions concerning Federal assistance in the development of housing, educational, administrative and other facilities.

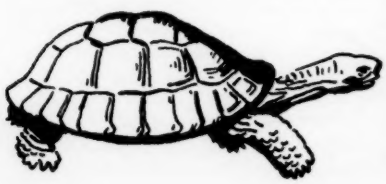
Although no strong opposition to the bill was noticeable in the committee hearings, it was defeated when brought out on the floor of the Senate.

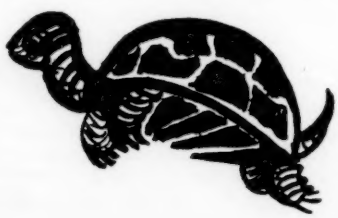
—E. R.

DISPERSAL AMENDMENT ALSO DEFEATED

Some of the major Congressional attitudes on industrial dispersal, which to some degree must represent laymen's first reactions to any proposals for movement of industry away from present locations, were brought out in the House of Representatives July 11, 1951.

The subject was the "Rains amendment" to the Defense Production Act of 1951. Named for Representative Albert Rains of Alabama, it provided that new war production plants, where financed in whole or part by the government, should observe certain criteria.





It asked that the plants be placed in areas which: [a] had the natural resources; [b] were not using their labor forces 'fully"; [c] were relatively 'underdeveloped industrially'; [d] had 'not retained their natural increase in population'; and—this was the last condition named—[e] 'were relatively less vulnerable to enemy attack by reason of geographic location, or the absence of heavy concentrations of population or vital defense industry.'

Although the dispersal feature was named last, in introducing the amendment Representative Rains spoke first to the point that "if you believe there is danger of an atomic attack it is utterly foolish to take the taxpayers' money —and have the Government build defense plants in dangerous, congested areas." He also mentioned that many States in the Union have lost population, and lost it "to the already overburdened congested industrial areas."

* * *

Rep. James Patterson, of Connecticut, suggested that if Russia "has long range bombing planes, factories will not be any safer in . . . any other part of the country, than they are right in good old New England." He added, "You are going to uproot families that have lived in New England all of their lives, who own their own homes, whose children are coming along and following in the footsteps of their fathers in the skilled trades. . . . This amendment is one that will make New England strictly a ghost-town area."

Mr. Gordon McDonough of California charged "There is a grave danger that once this authority is put on the statute books of this Nation, Washington bureaucrats could . . . further plan the economy of the country by moving industries now located in other areas." He suggested it might later be extended "to adjust the economy so that industry may be nationalized."

Mr. Herman Eberharter of Pennsylvania asked, "Do you want the business, the industry of this country to have to listen to somebody down here to whom the President has delegated authority to decide the extent to which human and material resources are utilized? Who is going to decide what area of the country is safest from attack? The military? That has not been decided; nobody knows where the attack may come. [The amendment] is going in the direction, if I ever saw anything going in any direction, of a planned economy, giving all the authority to regulate industrial functions and business to some person or group delegated by the President."

* * *

Mr. Brent Spence of Kentucky, referred to Fort Knox, and said his home state was the safest place in the Nation from enemy attack, as implied by the burying of 22 billion dollars of gold there.

He spoke for the amendment, saying, "I do not think we need very extensive hearings on the subject of dispersal of industry. I think it is as natural to want our industries dispersed as is the instinct of self-preservation."

PLEA FOR SECRECY

In debating a bill on dispersal, Representative Nicholson of Massachusetts spoke for more consideration of security in revealing location of defense projects.

He said, "In the *United States News and World Report* there is a map of the United States with locations of certain major atomic bomb installations:[1] Now then, I am rather inclined to think that when you hand a map to whoever may be going to bomb us, they would be very glad to get that kind of information, and I think it is about time that these flannel mouths over in the Department of the Pentagon should keep their mouths shut about some of the military secrets."

[1] Brookhaven, Oak Ridge, Los Alamos, Paducah, Hanford, etc.

Mr. Edwin Arthur Hall of New York, said, "I say the privilege to send workers from one part of a country to another section, when they might not want to go, belongs to the Soviet Union, and has no place in this country. Let industry locate where it may, and the workers go wherever they prefer, as they are so permitted in a free nation and by a noble constitution."

Mr. Carl Elliott of Alabama said, "I fail to see how there can be any disagreement about the necessity to scatter our industry so that great segments of it will not be destroyed by the destructive power of one atomic or hydrogen bomb. . . . We now find that defense industries built over the period of the last year are, in the main, being built at or near the points where industry is already concentrated. I am sure that as the poisonous minds of the Kremlin look at what we have been doing . . . they must receive a considerable amount of satisfaction from our careless disregard of the safety of this country."

Mr. John Shelley of California said, "American industry knew what it was doing when it built its plants where it did. When economic interests dictate, American industry can afford to relocate or to build new plants wherever necessity demands. . . . Neither the Army, nor the Navy, nor the Air Force have recommended this dispersal program. . . ."

Mr. Walter Rogers of Texas, in supporting the amendment, extended a challenge to the Russians and a positive invitation to Northern industry to come to the Southwest:

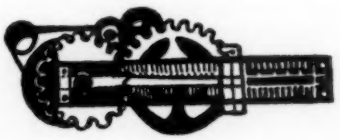
"We know you have congestion, and that many of you want public housing. . . . We want you folks to send these people out into the Southwest, and we will let private industry build houses, and provide plenty of fresh air and good wholesome living. We want private enterprise out there. We can fill the bill and we will do it. No Russian plane is going to come near the Panhandle of Texas and ever get home again. We can do the job out there. We have oil and gas running aplenty. We have the fuel and we are going to have the water. . . ."

* * *

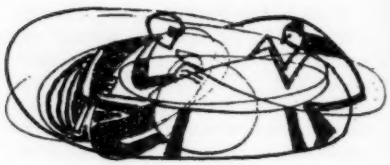
On a vote, with record taken as demanded by Mr. Rains, the amendment was defeated 134 to 79.

As would appear from the quotations given above, the proponents and opponents of the amendment saw it primarily as a lever to force industry to move from some states to others presently less heavily-industrialized. The announced policy of the National Security Resources Board stresses, instead, dispersal within the "marketing area" of the existing industrial centers. Whether small highly-industrialized states, such as Connecticut, have enough free area left for this type of dispersal to be effective is still being debated.

—M. A.



POLITICS IN DISPERSAL



RICHARD BOLLING

Representative Richard Bolling, Democrat from Missouri, points out that a single air raid might paralyze the national capital, and perhaps result in "disorder, bloodshed, and mob rule." He argues that the original designer of Washington, L'Enfant, had a bold plan in 1800 and similar boldness is needed in dealing with the District of Columbia's present need for "a cluster of healthy small communities."

AMERICANS find it hard to believe that their government could be overthrown by force and violence. Yet the forceful overthrow of the government of the United States is a very real and present possibility. It could happen this month or next or on any day that Congress is in session and the President and other top officials of government at their desks. Three or four well-aimed A-bombs dropped on the buildings concentrated in the center of the nation's capital could do the trick.

In one blinding flash the American people could be deprived of their President and all of his legal successors in office. They could be deprived of most of their elected representatives and, on the House side, with no constitutional method of replacing them short of the slow process of popular elections. They could be deprived of the bulk of the department and agency heads and other experienced officials, civil and military, who keep the government running.

THE GREAT THREAT

In short, the constitutional government of the United States, the government which the American people have cherished and fought for throughout their history, the government which they justly claim to be the best and strongest in the world—all this could be blotted out by a single air raid on the capital, or perhaps by guided missiles launched from submarines sneaking off the Atlantic coast.

There is a word for the absence of organized government. It is anarchy. We associate the word with disorder, bloodshed, mob rule. Would that be the fate of the United States if its government were destroyed? We hope not, but who knows?

If an attack on Washington were the only enemy action taken against us, the country might be placed temporarily under martial law while its civil government was reconstituted. But suppose the attack was coordinated with attacks on other major American cities, with widespread sabotage of transportation and communications lines, with an airborne invasion of Alaska and with a general onslaught on our European allies? Our military commanders and our state and local officials would have their hands full. Perhaps there would be enough ability and energy left to organize the nation for the onset of war, perhaps not.

Certainly, the confusion created by destruction of the central government at the very moment when its smooth operation was most needed would be of incalculable value to the enemy. Jokesters like to say that there is already so much confusion in our government that no sensible enemy would want to destroy it. But it is not a time for joking. The threat is far too serious and the time too short.

We have known of this threat for a long time. It gets worse with each day that the Soviet rulers have to build up a bigger atomic stockpile and to improve the means of delivering it to the chosen targets.

What are we doing to meet that threat? Symptomatic of Congressional reaction was the newspaper announcement of a few months back, that, as a preparatory measure, members of Congress were to be supplied with first aid kits and a station wagon was to be parked regularly on the Capitol plaza to take survivors, if any, to the hospital—that is, if the station wagon itself survived. That was not a humorous proposal. It was made in all seriousness!

PREPARATORY DEVICES

There is a way to meet the threat of atomic attack on Washington. It is to so disperse the essential units of government—legislative, judicial, and executive—that no substantial proportion of the governmental machinery could be knocked out by any conceivable enemy raid.

That solution was adopted by the National Security Resources Board over two years ago, after careful study of other alternatives such as moving the capital to some inland city or going underground. The Board found that any point in the United States could be attacked by inter-continental bombers and that our air defenses could only blunt such an attack, not prevent it, so moving the capital wouldn't do much good.

The Board also found that going underground was impracticable except for a very few top offices. Such construction would be doubly difficult in downtown Washington because of the high water table (the Mall is only a few feet above sea level), and besides, underground installations could not give sure protection against determined A-bomb attack unless deep in mountain rock.

So the Board recommended and the President approved the immediate drafting of plans for dispersing essential units of government into the nearby Maryland and Virginia suburbs, where they could keep in touch with one another and with the central city yet be split into such small and scat-

tered units that an A-bomb attack on them would use too much of the enemy's striking power to be worth the effort.

In fact dispersal appeared to offer the only feasible way of taking Washington off the enemy's top priority target list. It was calculated that the move probably would save the city as well as the government.

DISPERSAL FOR NON-MILITARY PURPOSES

It might well save the city in another way; save it from the slow strangulation that comes from over-concentration of urban activity in a central area not adequately prepared to take care of it. For Washington, despite its wide downtown avenues and spacious parks, is suffering the same ills that have come to other great metropolitan centers that have outgrown their basic structure—the ills of congestion and blight. In the long run these forces can destroy a city as surely as enemy bombs.

Great as was the vision of Pierre l'Enfant in his historic concept of the American capital, he could not foresee the revolution which the motor car would bring to city life. Nor could he foresee his creation grown to a metropolis of a million and a half and stretching many miles beyond the area he surveyed. It is a great tribute to his genius that his plan still serves as a worthy setting for the Capitol, the White House, and other government buildings. It is no blot on his record that the city grew far beyond the area he planned or that subsequent generations failed to keep the city's structure abreast of its expanding and changing needs.

HISTORY, POPULATION, AND PLANNING

When the Seat of Government was first established at Washington in 1800, the population of the City was around 3,000 and the operations of government were simple. Now the city is 500 times that size and the operations of government at least 500 times more complex. Early legislators and officials commuted between home and work afoot or on horseback. There was no thought of driving ten or fifteen miles each way each day in solid lines of motor traffic.

The plain fact is that the nation's Capital of today and tomorrow needs an entirely different kind of basic plan from the kind that was good for the nineteenth century, one as fine and bold in dealing with today's problems as was l'Enfant's in dealing with the problems of 1800. The kind needed today is one of dispersed activity, a cluster of healthy small communities grouped around a central city, connected with it and with one another by fine transportation arteries but separate enough for each to have its own social and economic life.

Government workers should not have to traverse a great city's congestion to reach their offices. Much of the government's essential work should be carried on in offices and laboratories close to good living quarters in the suburban towns and villages. There are telephones for intercommunication between offices and facsimile reproduction for wire transmission of graphic material. It no longer requires couriers on horseback to carry messages between government offices!

Such dispersal would make for better living and working conditions in this hurried age. And at the same time it would make for greater safety in the age of atomic warfare. To attack small offices and laboratories scattered miles apart across a forty mile circle would require such a large number of weapons and involve such a high proportion of misses that it would not be a profitable venture for an enemy.

LEGISLATION AND KOREA

This was the thinking that actuated the early plans for the dispersal of government at Washington. Then came Korea. In August of last year the President sent an urgent message to the Congress asking funds for an immediate start on the dispersal program. The request was politely pigeonholed on the ground that dispersal was a policy matter that could not be covered in an appropriation bill, and it was too late in the session to consider policy.

Legislation to authorize dispersal, therefore, was introduced in the short session of the 82nd in January of this year. Extensive hearings were held by committees of both houses and testimony taken in both open and secret sessions. Officials from the Pentagon, the Atomic Energy Commission, Civil Defense Administration, and NSRB testified as to the vulnerability of present government offices and the need for dispersal. The Senate Public Works Committee submitted a favorable non-partisan report.

But when the legislation came up for a vote on the Senate floor on April 23, it was defeated by a nearly solid Republican lineup helped by a few anti-administration Democrats.

The Congress established the NSRB in 1947 with a mandate to advise the President on "the strategic relocation of industries, services, government, and economic activities, the continuous functioning of which is essential to the nation's security." One of the Board's first moves was to advise against the location of new industrial facilities in tight concentrations that would make profitable targets for enemy attack.

CONGRESS DELAYS

This advice has recently been reinforced by the President's directive of August 10 to all government departments and agencies having a part in the mobilization program that they shall stress dispersal as a major security factor in the issuance of certificates of necessity, the granting of loans, allocation of critical materials and the awarding of defense contracts. But for the most critical industry of all—the operation of the United States government—moves for security are now stymied by the inaction of the Congress.

Little more than a decade ago it was being widely said that the ineptitude of the French Senate in the face of crisis brought on the fall of France. Let us hope that no like charge can ever be levelled at the Congress of the United States.

DISPERSAL—A SELECTED READING LIST

Compiled by BERTHOLD ALTMANN and HARRY MOSKOWITZ

The following list includes materials relating directly, or to some small extent indirectly, to national security, and omits most of the popular articles published in newspapers and magazines.

A comprehensive treatment of the subject of dispersal and decentralization demands a thorough understanding of the economic, legal, administrative, psychological, and social implications of the problem, of its various engineering aspects, and the specific requirements for national security. To prepare a bibliography covering all these broad areas has proved to be uneconomical and impractical for the present purpose. Extensive annotations are necessary to connect the seemingly unrelated subjects with the main field, and such a task must be reserved for the preparation of a detailed monograph.

The assistance given by Dario G. Barozzi and Ralph E. Lapp aided in the preparation of the list.

ARNOLD, GAYLE W. "Disperse for Survival: Industry Can Answer the Threat of Atomic Warfare," *Ordnance*, CXXXIV (September–October 1949), 103–5.

A program of dispersion of industry can be developed around the expansion and obsolescence of plant facilities. Discusses such subjects as deconcentration, attractive targets, the feasibility of dispersion, underground construction, and the concept that relocation is not necessary.

AUGUR, TRACY B. "The Dispersal of Cities as a Defense Measure," *Bulletin of the Atomic Scientists*, IV (May 1948), 131–34.

———. "The Dispersal of Cities—A Feasible Program," *ibid.* (October 1948), 312–15.

———. "Dispersal Is Good Business," *ibid.*, VI (August–September 1950), 244–45.

The physical obsolescence of the larger American cities is costing the country an enormous sum in excess of costs just to keep the old plants in service. Current construction programs, to a large extent, do not solve the problems of plant and city obsolescence. Dispersal of cities will pay its own way and will in addition decrease our great vulnerability to atomic attacks.

———. "Decentralization Can't Wait," *Tennessee Planner*, IX (October–December 1948), 35–44, and *Appraisal Journal*, XVII (January 1949), 107–13.

———. "For Defense and Better Living: Urban Dispersal," *American City*, LXIII (June 1948), 137, (November 1948), 120, and (December 1948), 123.

BALDWIN, HANSON W. *The Price of Power*. New York: Harper & Bros., 1947.

Chapter 12, dealing with dispersion, decentralization, and underground sites, lists principal measures which government should take without delay.

———. "Strategy for Two Atomic Worlds," *Foreign Affairs*, XXVIII April 1950), 386–97.

Points to weaknesses in our civilian defense preparation. Advocates a gradual process of dispersion and "green belts" in the suburbs of growing towns.

BARNARD, CHESTER I. "Decentralization—Defence Against 'Atomization,'" *Public Utilities Fortnightly*, XLI (May 6, 1948), 597–603.

Decentralization of population is as disastrous to our economy by its own chain-reaction methods as the bomb itself would be to the people. There appears to be no defense against atomic warfare. International control may prove impossible, but is the only hope.

BAROZZI, DARIO G. *Industrial Dispersion*. Washington: National Security Resources Board, 1949. (Press Release, No. 87, January 20, 1949).

An economically feasible long-range program is advocated in order to reduce the vulnerability inherent in industrial and urban concentrations.

BIGGER, RICHARD, *see* CROUCH, WINSTON. "Britain in Africa: Dispersal in the Atomic Age," *The Union Review*, XI (June 1947), 2–3.

BRODIE, BERNARD. "Dispersion of Cities as a Defense Against the Bomb," *Infantry Journal*, LIX (July 1949), 33–35.

Industries especially and immediately should be cataloged and moved out of our cities entirely. Massive plants should be broken up into smaller units. Also systems providing essential services should be rearranged geographically.

BUNTING, EARL. *Community Cooperation and the Decentralization of Industry*. New York: National Association of Manufacturers, 1949.

Discusses the economic and social advantages of industrial decentralization.

Chance Vought Move. Dallas, Texas: Chance Vought Aircraft Division of United Aircraft Corporation, 1950.

At the request of the U.S. Navy Bureau of Aeronautics, the Chance Vought officials studied, planned, and executed the transfer of their plant to Dallas, Texas. This report relates the negotiations with various bureaus of the Navy Department, basic planning, deviations from the original plans, methods and procedures employed, problems encountered in moving operations, and personnel and production schedules during the move.

CHARLTON, GEORGE R. "Industrial Vulnerability in the Atomic Age," *Air University Quarterly Review*, III (Fall 1949), 13–23.

The advent of atomic warfare changes considerably previous concepts of defense. In order that vulnerability be reduced, individual, collective, tactical, and strategic considerations should lead to a definite plan of action.

CHRISTOPHERSON, D. G. "Defence Against the Atomic Bomb," *Nature*, CLVIII (August 3, 1946), 151–53.

Advocates dispersal of Great Britain's population in small cities of 20,000 each.

"City Decentralization and Regional Planning Urged by CIO," *American City*, LXV (September 1950), 95.

Quotes the new edition of the CIO Program of Regional Development and Conservation, entitled *The Foundation of Prosperity*. Advocates building up small

communities and bringing about the gradual opening up and spreading out of large metropolitan centers.

"Civil Defense Against Atomic Attack." Special issue of the *Bulletin of the Atomic Scientists,* VI (August–September 1950). Pertinent papers listed individually in this bibliography.

Civil Defense: The Architect's Part. (National Defense Pamphlet Series.) Washington: The American Institute of Architects, 1951.

Outline of the part played by the architect in the present emergency, reflecting a close collaboration with civil defense authorities of the federal government, and dealing with: civil defense in general, technical services, training, aerial attacks, effects of bombs on buildings, organization of buildings, evacuation, housing, and repair of war damage.

COALE, ANSLEY J. *The Problem of Reducing Vulnerability to Atomic Bombs.* Princeton: Princeton University Press, 1947. Pp. 116.

CROUCH, WINSTON W. and BIGGER, RICHARD. "Metropolitan Decentralization: Britain's New Towns Program," *Western Political Quarterly,* III (June 1950), 244–61.

"Decentralization, Blessing or Tragedy?" *American Society of Planning Officials,* Planning, 1948 (49), 27–42.

Contains: "Decentralization Can't Wait," by T. B. Augur; and "Problems of Reorganizing Our Great Cities," by C. E. Merrian.

DENISOV, B. "Rational Distribution of [Russian] Industry," *USSR Information Bulletin,* VI (September 4, 1946), 14–15.

DICKSON, PAUL W. *Decentralization in Industry.* (Conference Board Reports. Studies in Business Policy No. 30.) New York: National Industrial Conference Board, Inc., 1948. Pp. 40.

This survey of 148 companies confirms a definite trend toward decentralization. The degree of decentralization and the reasons given by the companies for centralization or decentralization are examined.

"Dispersal of Industry," *Ordnance,* XXXIV (November – December 1949), 193.

The Air Force believes that aircraft factories should be moved inland away from potential coastal target zones.

"Dispersion of Facilities Sought For National Security," *World Oil,* CXXVIII (January 1949), 44.

FOLLIN, J. W. "Factory Dispersal and Public Works Programs," *American City,* LXIII (November 1948), 120.

Letter to the Editor points to the role of the local community in industrial dispersal for national security. Modern industries depend on adequate highways, sewer and water lines, and the whole range of public works. The Federal Works Agency studies such phases of the dispersal program.

The Foundation of Prosperity. Program of the CIO Committee on Regional Development and Conservation. Washington, D.C.: CIO Department of Education and Research, 1950. Pp. 32.

Support for the principles of city decentralization, small town development, and industrial planning is promised.

FISH, SIDNEY. "Defense Plans Spur Industrialization; Plans for Decentralization of Industry for Defense Place Spotlight on Strategic Strength of the South," *Manufacturers Record,* CXVIII (November 1949), 34–35.

Legislative measures which would aid the decentralization of vital industry as a defense measure.

———. "Preparedness Program May Spur Decentralization," *ibid.,* CXIX (September 1950), 51–52.

Survey needed to disclose what the South can offer to correct overconcentration of basic lines. The South is ready to do its part in a program of industrial decentralization. The long-range planning required must be carried out by government agencies, with the advice of military experts and business leaders. Other federal aid desired, and the economic and industrial potential of the South are briefly discussed.

HAVILLAND, GEOFFREY DE. "Can Britain Disperse Her Aircraft Industry?" *Aircraft,* XXVII (September 1949), 24–25 and others.

An analysis of the problems involved in large-scale dispersal.

HAYES, MARION. "Regional Shifts in Industry and Population, 1899–1949," *Monthly Labor Review,* LXXI (July 1950), 106–8.

"Industry on the Move," *Economist,* CLIX (December 16, 1950), 1083–85.

Discusses moves of U.S. industries during earlier wars and probable future moves necessitated by defense needs.

ISARD, WALTER and WHITNEY, VINCENT. "Atomic Power and the Location of Industry," *Harvard Business Review,* XXVIII (March 1950), 45–54.

Even at prices competing with the better conventional sources, atomic power is unlikely to cause a general relocation of industry.

JANIS, IRVING L. "Psychological Problems of A-Bomb Defense," *Bulletin of the Atomic Scientists,* VI (August–September 1950), 256–62.

Considers also the psychological aspects of population dispersal, the resistance to a large-scale program, and how resistance of affected employees might be overcome.

LAPP, RALPH E. "American Strategy on Civil Defense," *National Fire Protection Association Quarterly,* XLIV (October 1950), 42–47.

Effective defense must consist of before-the-fact preventive measures, such as dispersion over a large period and evacuation before a threatened attack.

———. "The Atom–The Defense of Our Cities," *The Reporter,* III (September 12, 1950), 26–30.

Advocates dispersal of our cities and population and the creation of an Office of Civilian Defense with far greater authority than that vested in the NSRB.

———. "Hydrogen Bombs: IV. What is the Problem of Organizing an Effective Civil Defense Against It," *Scientific American,* CLXXXII (June 1950), 11–15.

Decentralization of industries and new types of cities are imperative. Advocates the "strip city" as a pattern for future urban development.

———. *Must We Hide?* Cambridge: Addison-Wesley Press, 1949. Pp. 182. $3.00.

———. "The Strategy of Civil Defense," *Bulletin of the Atomic Scientists,* VI (August–September 1950), 241–43.

Dispersal is the only really effective answer to the atomic bomb.

———. "Why the H-Bomb?" *The Reporter,* V (July 10, 1951), 30–32.

Purely from a military point of view the H-bomb would be of greater advantage to the USSR than to the U.S. While the Soviets have followed a planned policy of industrial dispersion, American industry and labor force have been concentrated to an extent that they both could be crippled seriously by a small-scale H-bomb attack. Instead of relying solely on the effects of the superbomb, this nation should develop adequate civil defense measures.

"London, Dispersal Programme," *Town and Country Planning*, XVIII (February 1950), 28–29.

Refers to the Ministry of Town and Country Planning memorandum issued on the movement of population and industry from inner London to new and expanded (reception) towns, and dated December 3, 1949.

LOPEZ, ANGEL. "City Planning and War (El Urbanismo y la guerra)," *Ejercito*, XII (May 1951), 7–16. In Spanish.

Reviews various types of city plans as to their vulnerability to air attacks and concludes that the "linear city" is best suited to withstand air attacks.

MACFARLANE, P. W. "Country Towns. The Balanced Expansion of Suitable Country Towns must Form an Essential Component of Any Policy of Planned Dispersal," *Town and Country Planning*, XIX (January 1951), 40–44.

MAYER, ALBERT. "New Towns and Defense," *Survey*, LXXXVII (February 1951), 64–65.

A top federal agency, comprehensive and decisive in its thinking, which is part of the defense mobilization galaxy, and urban redevelopment legislation are necessary to avoid housing mistakes of World War II.

———. "A New Town Program," *American Institute of Architects Journal*, XV (January 1951), 5–10.

No one questions the need for disaster relief; however, the dispersal program for federal office buildings in Washington, D.C. is a "timid halfway proposal." Short- and long-range views both point to one single solution, the building of new decentralized communities. The time to start them is now.

MEYER, CORD, JR. "What Price Preparedness," *Atlantic Monthly*, CLXXIX (June 1947), 27–33.

The cost of dispersing U.S. industries and moving cities underground.

MITCHELL, DON G. "Social Aspects of Decentralization," *Mechanical Engineering*, LXX (June 1948), 532–34, and *Journal of Property Management*, XIII (March 1948), 201–6.

The practical and economic aspects of moving industry to smaller places is considered. A well-thought-out program of decentralization offers a practical means of re-establishing the dignity of the worker as an individual, builds citizenship and pride of government, and offers a powerful means for combating industrial unrest and discontentment upon which Communism feeds.

MONSON, DONALD and ASTRID. "How Can We Disperse Our Large Cities?" *American City*, LXV (December 1950), 90–92, and *ibid.*, LXVI (January 1951), 107–11.

Dispersal is the only effective protection against possible atomic attack. Wholesale dispersal of metropolitan centers is Utopian. However, we can channel such production as is possible to small cities and direct all new building in metropolitan areas to a system of planned satellite towns, together with accelerating the urban expressway programs and reducing the population density of cities.

NANCE, C. T. "The Development of Strategic Mobility in the Royal Air Force," *Royal Air Force Quarterly*, II (January 1950), 23–29.

It is recommended that the air supply industry of Great Britain be dispersed throughout the Commonwealth and that overseas operating areas be apportioned into zones in which all Commonwealth air forces would be supplied from local industries and resources. The need for such a Commonwealth Air Forces Maintenance Plan is strongly recommended.

NELSON, HERBERT U. "Real Estate and the Atomic Bomb," *Air Affairs*, III (Spring 1950), 364–72.

Real estate boards of 135 cities, in a survey of the possible effects of the atomic bomb, gave this consensus: (1) acceleration of the decentralization of industry, very gradual until war is imminent, (2) the government may well act directly to induce relocation of key plants or dispersal of certain essential industries, (3) no change is expected in existing central business districts, (4) the spreading of people to suburban regions will be accelerated, (5) sales of farms near large cities may be expected to increase, (6) there is at present relatively much talk but little action, indicating a profound inertia in the people induced by several considerations, and (7) there will be more planning and more specialized study on industrial location.

"New Towns for American Defense," *The American Institute of Architects Journal*, XV (January 1951), 4–50.

This symposium summarizes a series of new-town plans which were prepared during the last five years in the Department of Regional Planning, Graduate School of Design, at Harvard. Pertinent contributions are listed individually in this bibliography.

OGBURN, WILLIAM F. "Would Disperse Cities for Defense," *City Club Bulletin* (Chicago, Ill.) XV (March 29, 1948), 25–26.

While official Washington has not yet begun to think about the question of how to defend the civilian population in case of war, city administrations should undertake certain defense measures on their own. The dispersal of cities is advocated. Whatever the cost, it cannot be as great as that of reconstructing cities destroyed by bombs.

OPPENHEIMER, ERNEST. "The Challenge of Our Time," *Bulletin of the Atomic Scientists*, III (December 1947), 370–73.

Analysis of economic changes and dispersal of industry and population in event of a future war.

OSBORN, F. J. "On Cities in the U.S.A.," *American Institute of Planners, Journal*, XIV (Summer 1948), 4–16.

Constructive suggestions as to city planning and city developments in the United States.

———. "Planning in Great Britain: The Part of Voluntary Societies." (Address before the Community Planning Association of Canada, October 3, 1947), *ibid.*, pp. 20–28.

PERKINS, G. HOLMES. "New Towns for America's Peacetime Needs," *American Institute of Architects Journal*, XV (January 1951), 11–15.

New towns will create a better environment. They are economically and technically possible today; whereas billions promised for urban redevelopment will hardly improve the present conditions.

"Policy in Dispersal," *National Defense Transportation Journal*, VI (March–April 1950), 2, and others.

Emphasis on the policy of the Department of Defense which does not advocate moving industries from one area to another in the interest of national defense, but to disperse within areas.

"Problems and Control of Decentralization in Urban Areas," A Symposium, *Proceedings of the American Society of Civil Engineers*, LXXIII (November 1947), 1331–39; discussion, *ibid.*, LXXIV (March 1948), 386–88, and *ibid.* (June 1948), 951–56.

Consisting of: "Problems of United States Cities," by John M. Picton; "Approaches to Decentralization Control," by Russell H. Riley; and the discussions by William T. Hooper and Donald M. Baker.

RABINOWITCH, EUGENE. "Civil Defense: The Long-Range View," *Bulletin of the Atomic Scientists*, VI (August–September 1950), 226–30.

Points out the danger that Soviets can deliver simultaneous blows against a large number of our vital centers. Only by a coordinated nationwide program can the sudden destruction of our industrial ca-

pacity be averted. Various aspects of an efficient program are discussed which might make an atomic attack even less likely.

REED, THOMAS H. "Hope for Suburbanitis, A Genuine Cure Calls for Drastic Surgery on the Present Scheme of Local Government," *National Municipal Review*, XXXIX (December 1950), 542–53.

Urban expansion has grown to such an extent that local governments cannot provide either the resources or the energy for the necessary extension of water, sewers, highways, and other public works. Steps short of complete city-county consolidation, the so-called borough plan, functional consolidation, greater powers to counties (e.g., planning and zoning regulations, sound building codes), are considered as effective means in the fight against suburbanitis.

RIEMER, S. "Escape Into Decentralization?" *Land Economics*, XXIV (February 1948), 40–48.

ROBINSON, C. F. "Industrial Vulnerability to Bombing," *Military Engineer*, XLI (January–February 1949), 1–6.

Documented study of destructive effects of atomic bombs on building structures and the protective measures which have been taken and considered to date. Concludes that dispersion of industries is the best answer.

"Should, Must Cities Decentralize: Report of the City Planning Section," *The Commonwealth* (Commonwealth Club of California), XXIV (May 31, 1948), 1–41.

Under the chairmanship of David D. Bohannon, the Club's City Planning Section undertook a factual survey to determine: (1) the degree of decentralization of people and industry that has already taken place; (2) the degree of dispersal now under way; and (3) how far this movement may, and should go in the future. The main study (120 pages) consists of the following chapters: Planning Aspects, by Milo Robbins; Socio-Economic Aspects, by Stuart P. Walsh; Atomic Bomb Threat, by James Underhill; and Transportation Problems, by Richard F. Lyman, Jr. This publication contains the digest of the study together with pro and con discussions thereon.

"Spreading Out: More Than the Bomb is Making Concentrated Industry Decide to Scatter," *Architectural Forum*, LXXXIX (October 1948), 18, and others.

Forty-six per cent of the 2,038 plants erected since war's end had been built away from established centers in towns with population of 50,000 or less. Factors and implications of relocation and decentralization are discussed.

STARR, EVERETT. "Decentralization Hits Big Port Cities; Causes: High Land Costs, Defense Requirements, Lack of Funds for Development, Congestion," *Distribution Age* (October 1949), 46, and others.

U.S. ATOMIC ENERGY COMMISSION. "The City of Washington and an Atomic Bomb Attack," Prepared for the NSRB, November 1949. (AEC press release No. 216).

U.S. CONGRESS. JOINT COMMITTEE ON THE ECONOMIC REPORT. *The Need for Industrial Dispersal*. Washington: U.S. Government Printing Office, 1951. Pp. 56. (Joint Committee Print. 82nd Congress, 1st session.)

This report attempts to summarize the nature and extent of the programs for directly stimulating expansion and to relate them to the problems of industrial location for maximum military security and

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utilization of the nation's economic resources. It is recommended that the Defense Production Act be amended to the end that adequate steps be taken by all departments of government concerned with the expansion of industrial facilities to insure a sound policy of utilizing fully the human and material resources of the nation, of dispersing the productive capacity for purposes of national security, and of minimizing the further concentration of population in densely populated areas.

———. *Authorizing a Program for the Dispersal of Vital Federal Agencies to Sites Outside of, But in the Vicinity of, and Accessible to the District of Columbia, and for the Decentralization of Other Federal Agencies.* Washington: U.S. Government Printing Office, 1951. Pp. 10. (U.S. Senate, 82nd Congress, 1st session, Report No. 216, calendar No. 194, report to accompany S. 218.)

———. *Certificates of Necessity and Government Plant Expansion Loans. Fifth Intermediate Report of the Committee on Expenditures in the Executive Departments.* Washington: U.S. Government Printing Office, 1951. Pp. 39. (82nd Congress, 1st session. House Report, No. 504.)

In the review of the program which permits a company to write off the cost of a new plant over a five-year period, various modifications are suggested, and specific provisions are recommended to locate new industrial facilities with due regard to military security.

———. *Dispersal of Federal Buildings (Agencies). A Bill to Authorize a Program to Provide for the Construction of Federal Buildings Outside of, But in the Vicinity of and Accessible to the District of Columbia, and for Other Purposes.* Hearings before the Committee on Public Works on H.R. 9864. Pp. 63. (House of Representatives, 81st Congress, 2nd session.); Hearings before the Subcommittee of the Committee on Public Works on S. 4232. Pp. 188. (U.S. Senate, 81st Congress, 2nd session.); Hearings before the Subcommittee of the Committee on Public Works on S. 218. Pp. 80. (U.S. Senate, 82nd Congress, 1st session.); Hearings before the Subcommittee on Public Buildings and Grounds of the Committee on Public Works on H.R. 1728. Pp. 146. (U.S. House of Representatives, 82nd Congress, 1st session.). Available from U.S. Government Printing Office, Washington, D.C.

———. *A Graphic Guide to Decentralization and Some Simple Facts on Reconstruction. United States Senate 78th Congress, 2nd session Pursuant to S. Res. 190, A Resolution to investigate the Effect upon the Country of the Centralization of Heavy Industry in the United States, October 7, 1944.* Washington: U.S. Government Printing Office, 1945. Pp. 7. (U.S. Congress, Senate, 79th Congress, 1st session, document No. 75.)

U.S. LIBRARY OF CONGRESS. *Mobilization Planning and the National Security (1950–1960).* Prepared by Legislative Reference Service of the Library of Congress. Washington: Government Printing Office, 1950. Pp. 245. (U.S. Senate, 81st Congress, 2nd session, document No. 204, LC Public Affairs Bulletin No. 81.)

U.S. NATIONAL SECURITY RESOURCES BOARD. *National Security Factors in Industrial Location.* Washington: Government Printing Office, 1949. Pp. 12. $.25.

Guides for the development of a pattern of industrial dispersion consistent with economic advantage and adequate for protecting the country's industrial plants in the event of war. Most of the dispersion can be accomplished within the framework of normal expansion and replacement of obsolete facilities.

VAN BRUNT, G. A. "Can Chemicals Dig In?" *Chemical Engineering,* LV (March 1948), 106–8.

To study proposed protection of U.S. industry from future atomic bombing, a survey was made to find applicability of the idea of underground industry to chemical manufacturing plants. Results of the survey are presented.

WALKER, CHARLES R. *Steeltown. An Industrial Case History of the Conflict Between Progress and Security.* (Yale Labor and Management Center Series.) New York: Harper and Bros., 1950. Pp. 284.

Discusses the move of the National Tube Company, a subsidiary of U. S. Steel Corp., from Ellwood City, Pa. to Gary, Indiana, 1946–47.

"War Plant Dispersal Favored Over 'Digging In' But Army Also Studies Underground Protection," *American Machinist,* LXXXXIV (March 20, 1950), 132–33.

Points out that all available underground areas in the United States are cataloged, and that Germany had 143 factories in production below the surface. Defines dispersion, stating that it is industry's job. Discusses the German and the Japanese experience, the use of railway and highway tunnels, the need for planning, and the limitations underground. Several underground installations in the United States are described.

WATKINS, RALPH J. "Strategic Location Industry," *American Planning and Civil Annual* (1949), 55–60.

Decentralization of industry will raise our economic potential, strengthen our free economy and provide sensible protection against modern weapons.

WHEATON, WILLIAM L. C. and WEGNER, ROBERT L. "The Economic Feasibliity of New Towns," *American Institute of Architects, Journal,* XV (January 1951), 36–45.

WHEILDON, L. B. "Dispersion of Industry," *Editorial Research Reports,* II (July 16, 1948), 493–508.

"When Industry Moves to the Country. A Timely Study of Ruralization —and Two Practcial Ways to Set Up Small Units in Small Towns," *Factory Management and Maintenance,* CVI (August 1948), 66–73, and in *Management Review,* XXXVII (November 1948), 543–45.

WHITNEY, VINCENT, *see* ISARD, WALTER.

WILEY, ALEXANDER. "Decentralizing the Federal Government," *Air Affairs,* III (Spring 1950), 406–13.

———. "We Must Decentralize," *Reserve Officer,* XXV (February 1948), 6–9.

WILLIAMS, M. H. "Weapons of the Next War," *Technology Review,* LII (February 1950), 203–4, and others, and *ibid.* (March 1950), 250–52, and others.

WINDELS, PAUL. "How Should Our Cities Grow?" *Town and Country Planning,* XVIII (September 1950), 362–70.

WYLIE, PHILIP. "A Better Way to Beat the Bomb," *Atlantic Monthly,* CLXXXVII (February 1951), 38–42.

Too much emphasis is being put on dispersal. The American public will have to remain in cities for the most part. The best defense possible under such conditions must be devised.

ZEIDLER, FRANK P. "A Mayor Looks at the Civil Defense Program," *Bulletin of the Atomic Scientists,* VI (August–September 1950), 249–51, and others.

Discusses the organization in Milwaukee, the need for national and state organizational pattern, and agrees that cities might be more defensible if they rearrange themselves into long ribbons.

CIVIL DEFENSE NEWS

CD APPROPRIATIONS FACE FURTHER CUT

On top of a similar slash in funds earlier in the summer, Congress again refused in August to approve more than a fraction of the amount of funds civil defense experts feel are necessary for the security of the country.

Without funds, and with the present public apathy on the subject, a bombing attack on the United States might cause a million casualities, Millward Caldwell, Federal Civil Defense Administrator, warned Congress.

He said he based his request for $535,000,000 for the coming year upon "certain vital and new information from the Central Intelligence Agency concerning Russian capabilities." He also referred to an AEC report on Eniwetok, which asked that CD leaders plan on the basis of weapons "several times more powerful than the Hiroshima-Nagasaki, or nominal, weapons."

Ignoring these and other warnings, the House Appropriations Committee approved only $65,255,000 of the requested amount.

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This 87 percent cut allowed only 50 million of $200 million sought for medical supplies and equipment. The federal agency was told state and local agencies should provide for fire-fighting equipment and warden services.

The House Appropriations Committee gave as its reason for such a drastic cut that "... a civil defense program cannot be won merely by making larger appropriations of Federal funds." It called for a "realistic well-coordinated plan guaranteeing to the people the maximum of protection for the money expended."

The *Christian Science Monitor* said by this action of a "listless Congress," the nation's "thousands of civil-defense volunteers have been left in a quandary."

Mr. Caldwell called into a special meeting his "Civil Defense Advisory Council," composed of prominent national leaders, including Dr. Lillian M. Gilbreth, Mary McLeod Bethune, Silliman Evans, and three governors, Frank Lausche of Ohio, Frederick G. Payne, of Maine, and Luther W. Youngdahl, of Minnesota.

This Council issued a statement that the apathy of both Congress and the public toward adequate civil defense measures is "appalling." It called for an "Alert America" campaign—a program of education which the FCDA has been considering—which would "inform the public of their grave danger and the need for civil defense." It said there has been "general disregard" of the fact that "the enemies of democracy are capable of delivering a mass attack at any time on our major cities and production centers."

"Every force for good and for patriotic endeavor must be brought to bear now in this campaign to alert America ..." said the Council, for "without a sound, large-scale civil defense program as a co-partner with the military, America could lose the next war."

The public apathy behind the Congressional apathy was the concern of a New York *Times* correspondent in Chicago, who interviewed many of the Illinois members of Congress. Representative Sidney R. Yates, Democrat, said, "The people just do not seem to know what would happen if an atomic bomb were dropped on them. Such fears as they have are nebulous. They do not appear to feel that an all-out war is near, and they do not know what its effect would be if one should come."

Others interviewed by the *Times* echoed this view, and cited the homely but oft-disproved adage that "what you don't know won't hurt you."

One Congressman summed it up, "They don't know what hell is like, either, and it takes a lot of preaching to make them scared of it."

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FCDA BOOKLETS

The Federal Civil Defense Administration has recently issued several new booklets to be used as administrative guides by civil defense organizations. They are "Police Services," which discusses organization and training of police auxiliaries; "The Rescue Service," which describes the organization and training of rescue teams, recruited from among construction workers, and "Water Supplies for Wartime Fire Fighting."

This latter advises on the changes required to make cities' water supplies adequate to fight the city-wide fires to be expected from atomic-

"THE UNIVERSAL CASUALTY TAG . . ."

From a monograph on "Mortuary Services" in civil defense, prepared for the Illinois State CD office, those interested may learn the theory, practice and advantages of using a "Universal Casualty Tag." The "Universal Casualty Tag" is described as "large enough to be conspicuous yet small enough to fit in a rescue worker's pocket."

"The form for the living and the dead is combined," the monograph explains, because "it simplifies training for all concerned; reduces the supply and distribution problems; will prevent many mistakes in the fields, since rescue, litter and first-aid personnel will have no need to differentiate between tags for the living and the dead."

It is defined as "the basic Health and Welfare Services record of persons who are immediate casualties or may later suffer delayed effects of enemy action ... for both the living and the dead the Universal Casualty Tag is a basic source of Civil Defense operational intelligence."

To some, it may also seem the perfect "basic symbol" of the age.

bomb attack. In all of the great fire-raids which gutted so many German and Japanese cities, the inadequacy of the water supplies resulted in uncontrollable fires.

Among the suggested changes required to make fire-fighting possible are [1] the setting up of storage facilities (tanks, reservoirs) for large amounts of water; and [2] installation of gate-valves at frequent intervals to make possible closing off areas where extensive damage has resulted in excessive water leak (and attendant drop in water pressure), due to breaking of water mains or loss of water from destroyed homes.

BLAST-PROOF GLASS

The development of a folding glass window "capable of withstanding atom-bomb explosions" was recently announced by the Pittsburgh Plate Glass Company. Similar to a shatter-proof windshield, the blast-proof window is a sandwich-type-construction, plastic backed by inner glass.

Tested under blast explosions stronger than the Hiroshima blast at one mile, these windows were reported to have folded back without breaking, while ordinary windows tested alongside shattered so badly that large pieces were blown eighty feet inward. The windows are so constructed that the plastic and inner glass stop flying pieces of front glass, and then fold inward before they can break.

CD MUTUAL AID PACTS

Setting precedent under the Federal Civil Defense Act of 1950, the States of New York and New Jersey are the first to formally announce a civil defense mutual assistance pact.

The terms of the agreement, made public late this summer, provide that each state will make available to the other all resources and civil defense personnel required to meet emergencies arising in the state suffering attack. However, it stipulates that the state rendering aid may withhold resources necessary to provide reasonable protection for itself.

Each pact-state will extend to civil defense personnel who have been drafted from the other to help meet emergency conditions, the same powers, privileges and immunities while operating within that state which they would have if performing duties in their own state.

Closely following this announcement is the recent proposal by civilian defense officials of the United States and Canada to lift restrictions along the 3,500 mile international border in the event of an atomic attack upon North America.

Under the plan, Canadian provinces and American states would be free to set up cooperative civil defense organizations. Customs, imigration and communications restrictions that normally apply at the border points would be lifted. Similarly, fire-fighting equipment, hospital units, ambulances and personnel would be exchanged freely.

ITEMS

In Chicago, the Red Cross reported it had offered free first aid training for employees of firms in the area; but of 2,000 firms queried only 69 took advantage of the program. . . . Dr. Shields Warren advised a civil defense conference that automobiles a mile from the Nevada tests remained relatively intact . . . thus he thinks in a limited sense an automobile has a value as a bomb shelter.

In New York the superintendent of Lenox Hill Hospital complained that "We're told to be well supplied with gauze, drugs, oxygen, etc." for civil defense, but that hospitals lack funds to lay down in extra supplies. "Except for a few cots, not one Federal, State or municipal dollar has been given to these hospitals to stock up additional beds, medicines, blood and other vital supplies for such an emergency."

In the third major "test alert" held in New York state, Rochester firemen arranged a battery of 167 hose lines to function as a "water curtain" on one side of the Genesee River. Said to be the first use of a "wall of water" for such a purpose, the idea was to halt advancing flames from an assumed area of devastation around "ground zero." How much water would be available for such a purpose after an A-bombing in the average city is not clear.

A new film on factory protection has been released by Cornell Films, producers of another widely-shown unofficial film, "Pattern for Survival." The new film is called "Target USA," and was produced with the cooperation of the Research Institute of America, and of Hanson Baldwin of the New York *Times*.

Described as "the first office building" specifically designed to resist an atomic blast, the new headquarters building of the National Farmers Union in Denver has an "inner core" of 14-inch thick concrete walls, with entrances baffled so no direct blast can reach the interior.

A CURTAIN IS LIFTED

The Department of Commerce "ban" on the mailing of the *Bulletin* overseas to "Iron Curtain" countries has been lifted, along with similar prohibitions applied to export of other "technical" journals.

According to a press release from the office of Mr. Charles Sawyer, Secretary of Commerce, "Beginning September 6 publications containing unclassified technical information may be sent anywhere overseas under general license, except to North Korea." It is explained that "this action has been taken after consultation with other interested government agencies, to permit freer export of publications which have unrestricted circulation in the United States."

Readers of the *Bulletin* will recall this was the subject of the *Bulletin's* editorial in its June issue. The abrupt order enjoining us to cease sending to some 70 subscribers in Russia and "satellite" countries seemed mysterious or ridiculous even if not judged dangerous—as an infringement of freedom of the press.

The announcement still makes no mention of what were the original considerations which led to banning this and other publications—available on newstands and in libraries—from the mails going abroad. What person or agency on what grounds decided that the *Bulletin* and other publications were technical—and what person or agency judged its export abroad to be not in the best interests of the U.S.—if that *were* the judgment—remains a mystery, but one which the *Bulletin* hopes to explore.

As expressed in the June editorial, we are happy to resume export, even to "Iron Curtain Countries." We have no illusions as to the freedom of circulation copies of our publication may enjoy after their arrival. But so far as they go, we feel they carry an expression of free inquiry and communication.

—The Bulletin Staff

Letters to the Editor

DEAR SIR:

To discuss all the items in Philip Wylie's curious article, *Impure Science*, would take too long. But his ideas on the California oath, which reflect on the actions of men of good courage, should not be allowed to pass unchallenged. He says:

"Let him [meaning the scientist, from the context, but actually any faculty member] sign for a shrewder and more humorous reason. . . . Suppose the angered scholars and savants in California had, instead of resisting to the point of excommunication, signed up to the last professor? They could have said 'Now, gentlemen of the Regents, we signed 100 per cent so where are the Commies?' For all the Communists would have rushed to fix their names, and a completed list would then have thrown the problem of 'guilt' back into the laps of the stupid pesterers of the people who saw liberty so narrowly, so personally, so theologically—in its sense of befuddled argument."

This is a clever suggestion. But would not a better one have been that no one sign? For then the faculty would have affirmed a principle, and they could still say "Now, gentlemen of the Regents, we refused 100 per cent, so where are the Commies?" The Regents would give the answer either way; but this way the first move would not have been conceded to them.

Suppose all had actually signed; might not Mr. Wylie then have deplored, in his colorful way, the abject submission of the faculty to unwarranted interference? Or, if not Mr. Wylie, many others? And would not an important principle have been lost by default for the sake of a clever chess move that would not have stopped the Regents anyway?

Failing a 100 per cent refusal to sign, are we not still better off with a handful of non-signers than with none at all? If, as Mr. Wylie says, and as I have no doubt is correct, all the Communists will have signed anyway, can the faculty still not ask the Regents "Where are the Commies?" Mr. Wylie's easy suggestion is a reflection on the handful of men who are still fighting the oath and what it stands for. Let us not, through flippancy, appear to say that their actions are misdirected and their courage expended in a futile course.

I wonder if Mr. Wylie has seen the full significance of his key point that the Communists would rush to sign. Does it not mean that only the non-signers are free of suspicion of Communist taint? Following this point to its logical conclusion, we may well ask whether, in these twisted times, a man dare take the chance of signing any patriotic sounding oath when by so doing he lays himself to the double suspicion of being a *prima facie* Communist and perjurer.

BANESH HOFFMANN,
Flushing, N.Y.

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Editor's Note—

A main purpose of the Bulletin *is to serve as a forum of opinion. Therefore the* Bulletin *invites reader's comments, not only upon its articles, but upon the current developments in science and society. Our address: 956 E. 58th St., Chicago 37, Illinois.*

DEAR SIR:

With the ethical standards of Kathleen Lonsdale one can, of course, have no quarrel. But I think it is necessary to point out, especially in a journal read primarily by scientists, that there is no actual connection between these ethical concepts and a belief in God, the divinity of Jesus Christ, free will, or any other religious dogma.

Atheists can (and do) accept "truth, beauty, integrity, justice, mercy, generosity, love" as ideals which they strive to attain. Dr. Lonsdale bases her argument on a false and most unscientific assumption—the assumption that religion and ethics are identical or inevitably conjoined or, in fact, have anything in common.

May I thank you for publishing Philip Wylie's powerful and—I hope—provocative article? As one of your readers who is not a scientist, but, like Mr. Wylie himself, merely a layman and a writer vitally concerned with the freedom of science as with the freedom of all knowledge, I am appalled by the world in which I find myself today.

If there still be any hope, I suppose it lies most probably in what Mr. Wylie calls "that arming horde which may restore freedom in a pure form." But may it not already be too late, and may freedom not have become the first casualty of democracy's death-struggle? It is certainly too late for Dr. Lonsdale's pacifism.

MIRIAM ALLEN DEFORD
San Francisco, Calif.

DISPERSAL CRITICIZED

The national dispersal policy, as outlined by the President and the NSRB statements of August, has been severely criticized by several prominent members of Congress. Typical, perhaps, was a statement of Senator Edward Martin, Republican, of Pennsylvania.

He said it was a "severe blow at Pennsylvania and every industrial state," which "gives the Administration bureaucrats the power of life and death over all industrial expansion.

Senator Martin said the President's "order of August 10 was a usurpation of power which must be regarded as an attempt to fasten bureaucratic control upon industry which can become tighter and tighter as new and more stringent Executive orders are issued."

ONE MISSING ITEM

"During the past six years, since the end of the Second World War, the task of perfecting modern weapons has been directly under military control in arsenals, proving grounds, and laboratories. Superficially, these mammoth installations possess everything—every conceivable physical facility, a surfeit of gleaming apparatus, plenty of money, and thousands of employees. The only missing ingredient is the spark of brilliance which creates new ideas. The men with that spark, the nation's top scientific brains, are not in government laboratories; the great majority are on the campus."

—R. E. LAPP, in *The Reporter*
September 18, 1951.

Is "Strategic Bombing" Ineffective?

Partly as a result of P. M. S. Blackett's book, "Fear, War & The Bomb," a conviction has become widespread that strategic bombing, however destructive of life and property, did not strongly affect German industrial production.

The following quotation from Goebbels' "Diaries" may counteract the more extreme criticism of bombing-effectiveness upon production. It must be kept in mind that comparatively successful rehabilitation of industrial production after heavy air attacks which had been achieved in Germany in 1943–44, was only possible because attacks on different cities came on different days with considerable intervals between them.

With the new weapons a far different and more terrible type of bombing will be possible.

Quotations from The Goebbels Diaries*

"Gauleiter Florian gave me a number of valuable suggestions during a long talk about air warfare. Florian has seen the damage in Essen and described it to me as exceptionally heavy. The English operated there with absolute precision, and even if the claim that Krupp has been 80 per cent destroyed is terribly exaggerated, we must nevertheless expect serious stoppages of production."

March 20, 1943

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"Nobody can tell just how Krupp's is to go on. Everybody wants to avoid transplanting Krupp's from Essen. There'd be no purpose in doing it, for the moment Essen is no longer an industrial center the English will pounce upon the next city, say Bochum or Dortmund or Dusseldorf. A position must be held as long as possible. It does seem important to me, however, that we evacuate the women and chidren from Essen so that only such inhabitants as are essential for work will remain."

April 10, 1943

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"The last raid on Essen has brought about 100 per cent stoppage of production in the Krupp Works. Speer is much concerned and worried about it."

July 28, 1943

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"During the night we had the heaviest raid yet made on Hamburg. The English appeared over the city with 800 to 1,000 bombers. Our anti-aircraft succeeded in shooting down only very few so that one cannot claim any serious losses by the enemy.

"Kaufmann gave me a first report on the effect of the British air raid. He spoke of a catastrophe the extent of which simply staggers the imagination. A city of a million inhabitants has been destroyed in a manner unparalleled in history. We are faced with problems that are almost impossible of solution. Food must be found for this population of a million. Shelter must be secured. The people must be evacuated as far as possible. They must be given clothing. In short, we are facing problems there of which we had no conception even a few weeks ago. Kaufmann believes the entire city must be evacuated except for small patches. He spoke of about 800,000 homeless people who are wandering up and down the streets not knowing what to do. I believe Kaufmann has lost his nerve somewhat in the face of this undoubtedly exceptional situation. Maybe he is a bit too lyrical and romantic for so great a catastrophe. . . ."

July 29, 1943

* *The Goebbels Diaries.* Doubleday & Company, New York, 1948. Ed. by Louis P. Lochner.

Quotes Without Comment

Charles E. Wilson, Director of Defense Mobilization (from second quarterly report to the President, July 4, 1951):

"Because of postwar research and development since 1945, we are reaching the production stage on a great many new and improved weapons and techniques.

"The most striking advances are in the field of atomic weapons. Atomic bombs considerably improved over those used in World War II are being produced on an industrial basis. The development of atomic warheads for artillery shells and guided missiles is proceeding, as is that of the atomic-powered submairne. In addition, progress is being made in defensive measures against atomic attacks, in methods of detecting and measuring radiation, and in decontamination procedures...."

Hanson W. Baldwin (*New York Times,* June 15, 1951):

". . . A so-called 20-kilo atomic bomb (a bomb equivalent in explosive effect to 20,000 tons of TNT) might be lethal to exposed personnel over an area of about one square mile or somewhat more; destructive damage to buildings, etc., would extend beyond this radius. A 30-kilo atomic bomb might kill—in flat terrain—all exposed personnel in three square miles. If we assume an army division of 15,000 men occupies a front-line position about ten miles long by five miles in depth (actually dispositions in depth would be greater than this), the personnel of the division would be spread out over an area of fifty square miles. If the men were uniformly dispersed but not dug in, the blast of one 20-kilo tactical atomic bomb might kill 150 to 300 casualties.

"Such figures—purposely over-simplified—mean, of course, that the tactical atomic bomb is likely to be primarily a weapon of opportunity. Utilized against an army in exposed positions and closely concentrated in large numbers, as in an amphibious landing on small beaches, or when massed for a break through, it could do great execution, not only to personnel, but to equipment. But against an army well dispersed and well prepared it would not be decisive."

Keep Up With Atomic Energy...

Coming in Future Issues . . .

Articles by

FRANCIS BIDDLE, former Attorney General of the United States and for many years a fighter for civil liberties—discusses in "Sickness of Fear" the meaning of loyalty investigations and the consequent intimidation of free thought.

HORATIO BOND, Chief Engineer of the National Fire Protection Association and author of "Fire and the Air War," warns against the threats and dangers of fire hazards in A-bombing and suggests possible prevention through decentralization in "Civil Defense Against the Fire Effects of the Atomic Bomb."

AMOS HAWLEY, described as a "Human Ecologist" and professor of sociology at the University of Michigan, attacks the practical problems of building new cities and reducing the size of old ones in a long-run Civil Defense Program through a speculative analysis of finance, housing and population problems in "Urban Dispersal and Defense."

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THE DUTY OF THE SCIENTIST IN SOCIETY

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